Technical Report of Existing Environmental Conditions

in support of the
U.S. 40 Corridor Study

MP 21 in Wasatch County to MP 157 in Uintah County, Utah

Utah Department of Transportation

Project No. S-0040(65)16
PIN 5855

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1.0 Introduction

This report was prepared in support of the U.S. Highway 40 (U.S. 40) Corridor Study. The purpose of this report is to help UDOT and the public understand the existing environmental conditions along the highway corridor between Mile Post (MP) 21, near Heber City, Utah, and MP 157 near Jensen, Utah. The information presented in this report will be used to identify and evaluate potential environmental issues that could affect the Utah Department of Transportation's (UDOT's) ability to construct roadway improvements along the corridor. The presence of significant environmental constraints will be an important consideration as UDOT develops a plan for future actions along U.S. 40.

1.1 Sources of Information

The information included in this report came from many sources. Data were gathered by reviewing existing information such as the land-use plans of cities and counties along the corridor; federal agency management plans or other planning documents; digital data available from federal agencies (for example, data on soils and hazardous waste sites), communication with local, state, and federal agency representatives; and an in-field reconnaissance ("windshield survey" or field review). All persons contacted and data sources used are listed in Section 9.0, References, of this report.

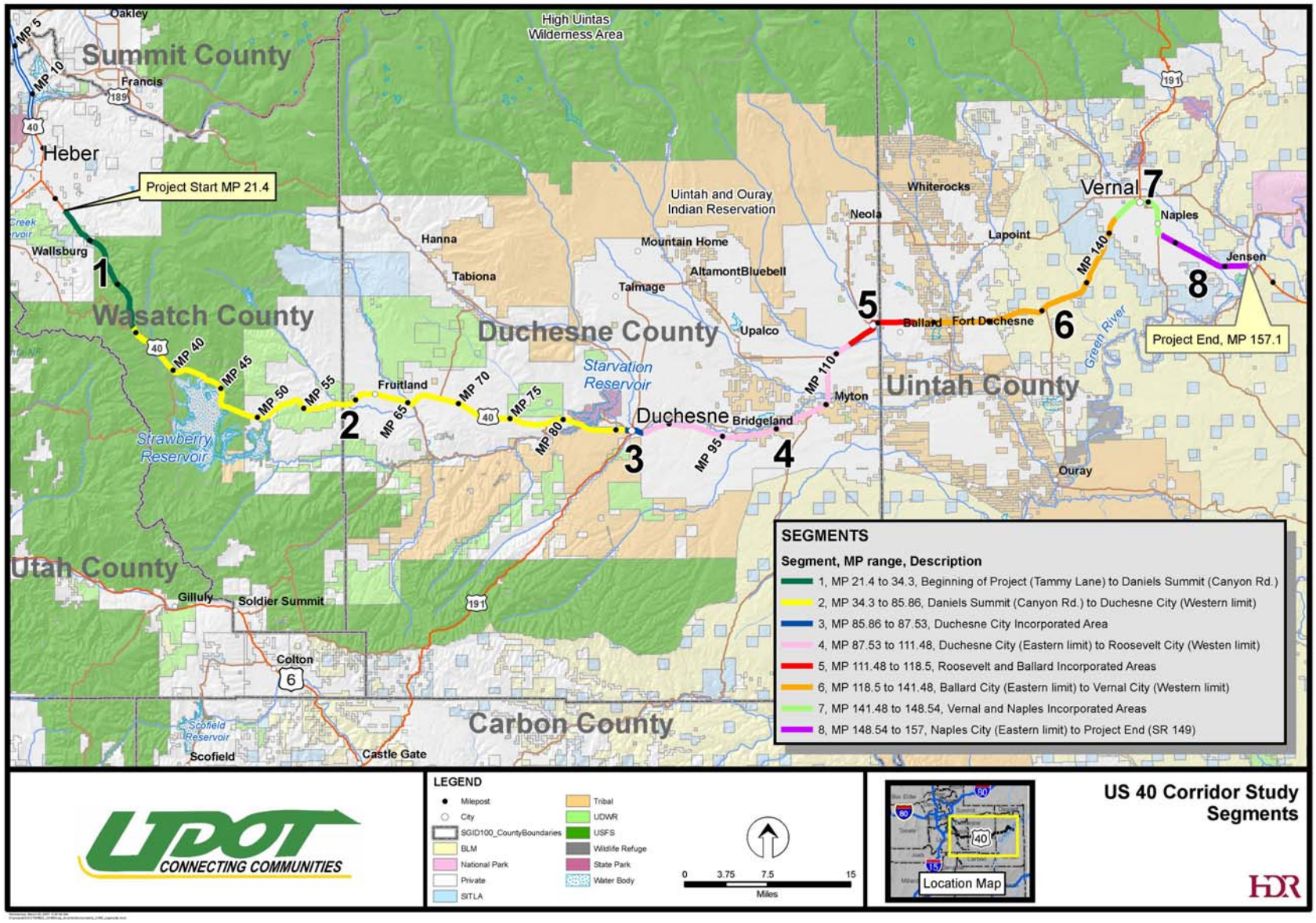
1.2 Report Study Area

The U.S. 40 study area includes 136 miles of highway in three Utah counties: Wasatch, Duchesne, and Uintah.[1] This report focuses on regional conditions, though corridor-specific information is provided if it was available.

For the purpose of producing this report, the project area was divided into eight segments based on general land use types (see Figure 1-1. below). These segments are described in detail beginning on page 3.

[1] The word Uintah is spelled two different ways, depending upon the reference. Most spellings use *Uintah*, though Wasatch County and the U.S. Forest Service use the spelling *Uinta*, and the river by that name is the *Uinta* River.

Figure 1-1. Project Area and Project Segments



Segment 1: Project Start (MP 21) to Daniels Summit (MP 34). This 13-mile-long segment passes through mostly undeveloped land in Wasatch County. Most land along the roadway is managed by the U.S. Forest Service (USFS).

Segment 2: Daniels Summit (MP 34) to the Western Duchesne City Limit (MP 86). This segment, which is 52 miles long, passes through mostly undeveloped land in Wasatch and Duchesne Counties. Most land between Daniels Summit and Strawberry Reservoir is managed by USFS, though there is some private recreational development around the reservoir. Between the eastern side of the reservoir and western Duchesne County, the corridor passes through state-owned land (wildlife management areas) and private land. Most of the land between the Wasatch County–Duchesne County line and the city of Duchesne is privately owned, with the exception of land around Starvation Reservoir, which is managed as a state park.

Segment 3: Incorporated Area of Duchesne City (MPs 86 to 88). This 2-mile-long segment in Duchesne County consists of that portion of the corridor within the Duchesne city limits. Development is typical of that found in rural towns. The land along the highway is dedicated primarily to commercial uses, though there is some residential and industrial development.

Segment 4: Eastern Limit of Duchesne (MP 88) to the Western Limit of Roosevelt (MP 112). This 24-mile-long segment covers an area dominated by private and tribal land. This area supports some agricultural production and limited oil and gas development. The segment is entirely within Duchesne County.

Segment 5: Roosevelt and Ballard Incorporated Areas (MPs 112 to 119). This segment, which is 7 miles long, encompasses the area within the incorporated limits of the cities of Roosevelt and Ballard. The Duchesne County–Uintah County line marks the political division between Roosevelt and Ballard, but the area functions as a single, more urbanized area. Development along U.S. 40 is dominated by commercial uses, though there is some residential development interspersed along the segment.

Segment 6: Eastern Limit of Ballard (MP 119) to the Western Limit of Vernal (MP 142). This 23-mile-long segment is characterized by tribal land and private land in the western half and by state-owned land and land administered by the Bureau of Land Management (BLM) in the eastern half. There is some oil-and-gas-related development along the highway, though most wells are south of U.S. 40 on tribal and BLM-administered land. This segment is entirely within Uintah County.

Segment 7: Vernal and Naples Incorporated Areas (MPs 142 to 149). This 7-mile-long segment is dominated by urban development normally associated with rural cities. Development immediately adjacent to the highway is characterized by commercial and industrial development, with limited residential development interspersed throughout.

Segment 8: Eastern Limit of Naples (MP 149) to Project End (MP 157). This segment, which is 8 miles long, is mostly under private ownership and is characterized by rural residential and agricultural development. State-owned land that touches the highway just west of Jensen supports some oil and gas wells.

1.3 Document Organization

This technical report is organized by resource topic. Each of the following sections summarizes the topic without extensive amounts of detail. This report addresses the following topics:

- Geology and Soils
- Hydrology and Water Resources
- Biological Resources
- Cultural Resources
- Section 4(f) Resources
- Hazardous Materials

2.0 Geology and Soils

2.1 Geology and Topography

2.1.1 Geology

In general, the geologic formations along U.S. 40 are relatively simple. The highway starts at the edge of the Round Valley near Heber City and travels over Daniels Summit to and through the Uintah Basin to the end of the project near Jensen. This section explains the basic geologic structure of the corridor throughout the project area and is derived from the Utah Geological Survey geologic map and hazards database (Hintze 1974; UGS 2007).

The project corridor starts in a transition area of rock that dates from the older Mississippian Period (in and around Heber City) to younger Quaternary rock (in the mountains between Heber City and Strawberry Valley). The transition area is defined in part by a portion of the poorly understood late Quaternary Round Valley fault system, which consists of northwest- to east-trending normal faults bounding the northeastern and southwestern margins of Round Valley. Round Valley is one of several "back valleys" of the Wasatch, a line of discontinuous valleys in the Wasatch Hinterlands east of the Wasatch Range. This fault has no sense of movement, and the most recent paleoevent probably occurred in the middle and late Quaternary period, based on range-front morphology.

Moving east from Segment 1 to Segment 2, the geology transitions from Quaternary to older Tertiary in the Strawberry Valley. This area is defined by the Strawberry Fault system, which consists of poorly understood suspected Quaternary formations. The faults, which are expressed as prominent lineaments and escarpments in bedrock, are east-west-trending normal faults and show no sense of movement. Photogeologic mapping indicates that no scarps are present on late Quaternary deposits. This evidence, together with a fault orientation that appears to be at odds with the contemporary tectonic stress regime, indicates that the fault system should not be considered a potential source for large-magnitude earthquakes. The most recent paleoevent probably occurred in the Quaternary period, based on escarpment morphology and the presence of lineaments.

Once the corridor enters the Strawberry Valley, it is in the Uintah Basin. The basin is a large, elongate, bowl-shaped structure south of the Uintah Mountains; the geology of the basin is dominated by Eocene rock and younger alluvium and colluvium formed during the Tertiary period. The structural axis of the Uintah Basin trends east-west and is about 10 miles north of the topographic low

(followed by the Duchesne River). The highway corridor follows sections of younger Quaternary rock that are associated with the Duchesne River between the cities of Duchesne and Roosevelt. Quaternary rock also occurs around Vernal and near the eastern terminus near the Green River.

The corridor passes near the southern limit of an additional small fault, the Stinking Springs Fault, east of the Strawberry Fault system but still on the western edge of the basin and north of the highway. This poorly understood north-trending fault has no sense of movement; the most recent movement probably occurred in the late Quaternary period. The Duchesne–Pleasant Valley Fault System, which consists of poorly understood, suspected Quaternary faults, occurs southeast of the city of Duchesne and south of U.S. 40.

Specific areas along U.S. 40 could exhibit instability (such as localized landslides) that is not discussed in this report. Though the geologic conditions along U.S. 40 appear to be generally stable, planning for and construction of individual improvement projects would require more detailed geotechnical investigations.

2.1.2 Topography

The western end of the corridor is bounded by the Wasatch Mountains, which are part of the Rocky Mountain physiographic province. The study corridor starts at about 5,900 feet above mean sea level (MSL) and travels over Daniels Summit, which reaches about 7,900 feet above MSL before the roadway drops to the Strawberry Valley and the western edge of the Uintah Basin. The center of the basin generally ranges between 5,000 feet and 5,500 feet above MSL (U.S. Army Corps of Engineers Topographic and Engineering Center 2006). East of Strawberry Reservoir, elevations continue to decline and level out at about 5,500 feet above MSL near Duchesne. The elevation of the corridor generally stays between about 5,100 feet and 5,300 feet above MSL between Duchesne and Vernal. East of Vernal, the elevation drops to about 4,700 feet to the Green River.

The Uintah Basin is the northernmost extension of the Colorado Plateau physiographic province. The topography of the project corridor is influenced by two main elements: the Duchesne River south and roughly parallel to the corridor between Strawberry Reservoir and the city of Myton, and the Green River, which is perpendicular to the eastern end of the corridor near Jensen.

2.2 Soils

Soil surveys from the Natural Resource Conservation Service (NRCS) were used to obtain information about the soils along U.S. 40; however, these surveys cover only part of the project corridor. The *Soil Survey of Heber Valley Area, Utah – Parts of Wasatch and Utah Counties* (USDA SCS 1976) contains information about soils between the western terminus of the project and about the top of Daniels Summit (project Segment 1). The *Soil Survey of Uintah Area, Utah – Parts of Daggett, Grand, and Uintah Counties* (NRCS 2003) includes information about soils between the Duchesne County–Uintah County line and the eastern project terminus in Jensen (project Segments 6 through 8).

Land between Daniels Summit and the Duchesne County–Uintah County line was surveyed in the 1920s and 1950s, but reports of the resulting soils data are not available. Projects completed in this area could require supplemental studies (such as geotechnical studies, wetland surveys, or farmland investigations) to determine if special considerations related to soils would be necessary.

Table 2-1 summarizes the available data on soil types along the corridor that are classified as hydric, prime farmland, or farmland of statewide importance. The types, or map units, are generally presented as they occur from west to east. A complete list of soils found along the corridor can be found in Appendix A. Complete List of Mapped Soils within One-Quarter Mile of the Project Corridor. These special-status soils are indicators of conditions that would require special consideration during the planning for future highway improvement projects.

Table 2-1. Special-Status Soils along the Project Corridor

Soil Map Unit Name (Identifier)	Location and Characteristic(s)
Holmes gravelly loam (Hr)	• Along highway low in Daniels Canyon • Farmland of statewide importance
Kovich loam, deep water table variant (Km)	• Along Daniels Creek low in Daniels Canyon • Farmland of statewide importance • Hydric
Clegg loam, 3–6 percent slopes (CgB)	• Along highway and a tributary stream low in Daniels Canyon • Prime farmland if irrigated
Clegg loam, 6–15 percent slopes (CgC)	• Along highway low in Daniels Canyon • Farmland of statewide importance
Fluventic Haploborolls (FA)	• Along highway and Daniels Creek in Daniels Canyon • Hydric

Table 2-1. Special-Status Soils along the Project Corridor

Soil Map Unit Name (Identifier)	Location and Characteristic(s)
Sessions clay loam, 5–15 percent slopes (SEC)	• Along highway in Daniels Canyon • Hydric
Turzo-Umbo complex, 0–4 percent slopes (243)	• Ballard/Fort Duchesne and Vernal/Naples areas of Uintah County • Hydric • Prime farmland if irrigated
Stygee clay loam, 0–1 percent slopes (221)	• Ballard area, western Uintah County and east of Fort Duchesne • Prime farmland if irrigated
Umbo silty clay loam, 0–2 percent slopes (252)	• Ballard area, western Uintah County • Hydric
Ohtog-Parohtog complex, 0–2 percent slopes (166)	• Scattered locations between Duchesne County–Uintah County line and city of Vernal • Prime farmland if irrigated
Ohtog-Parohtog complex, 2–4 percent slopes (167)	• Ballard area, western Uintah County • Prime farmland if irrigated
Shotnick-Walkup complex, 0–2 percent slopes (209)	• Ballard area, western Uintah County and east of Fort Duchesne • Prime farmland if irrigated
Greybull-Utaline-Badland complex, 8–50 percent slopes (94)	• Ballard and Naples/Jensen areas of Uintah County • Hydric
Blackston loam, 0–2 percent slopes (23)	• Fort Duchesne and Naples/Jensen areas of Uintah County • Prime farmland if irrigated
Boreham loam, 0–2 percent slopes (27)	• Fort Duchesne area, western Uintah County; Vernal/Naples area of Uintah County • Prime farmland if irrigated
Blackston loam, 2–4 percent slopes (24)	• Fort Duchesne and Naples areas of Uintah County • Prime farmland if irrigated
Nakoy loamy fine sand, 1–5 percent slopes (160)	• Fort Duchesne area, western Uintah County • Prime farmland if irrigated
Robido-Uver complex, 1–4 percent slopes (192)	• Along Uinta River near Fort Duchesne • Hydric
Yarts fine sandy loam, 2–4 percent slopes (280)	• Along sand washes between Fort Duchesne and Vernal • Prime farmland if irrigated

Table 2-1. Special-Status Soils along the Project Corridor

Soil Map Unit Name (Identifier)	Location and Characteristic(s)
Turzo-Umbo complex, 2–4 percent slopes (244)	• Vernal area of Uintah County • Prime farmland if irrigated
Green River loam, 0–2 percent slopes, rarely flooded (89)	• Vernal/Naples area of Uintah County • Hydric
Shotnick sandy loam, 2–4 percent slopes (206)	• Vernal/Naples area of Uintah County • Prime farmland if irrigated
Nolava-Nolava, wet complex, 0–2 percent slopes (162)	• Vernal/Naples/Jensen area of Uintah County • Prime farmland if irrigated
Nolava-Nolava, wet complex, 2–4 percent slopes (163)	• Vernal/Naples/Jensen area of Uintah County • Prime farmland if irrigated
Umbo clay loam, 0–2 percent slopes (251)	• Vernal/Naples/Jensen area of Uintah County • Hydric
Wyasket loam, 0–2 percent slopes (275)	• Naples/Jensen area of Uintah County • Hydric
Wyasket loam, 2–4 percent slopes (276)	• Naples/Jensen area of Uintah County • Hydric

Source: NRCS 2007

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3.0 Hydrology and Water Resources

3.1 Hydrology

3.1.1 Surface Water

U.S. 40 crosses a total of 149 non-wetland water features along the 147-mile project corridor. The features consist of 80 intermittent streams, rivers, or washes; 33 perennial streams or rivers; 36 canals, ditches, or aqueducts; and the arm of one reservoir (Starvation Reservoir). These features, many of which are unnamed, are tributaries of two major systems: the Utah Lake system (USGS cataloging unit 16020201) on the west side of Daniels Summit and the Lower Green-Diamond system (USGS cataloging unit 1406001) on the east side of Daniels Summit (that is, the Uintah Basin). See Appendix B. Rivers and Streams Crossed by U.S. 40 in the Project Corridor for a complete list of features crossed by U.S. 40 in the project area. Wetlands are discussed in Section 4.3.1 of this report.

Water features on the west side of Daniels Summit drain to Utah Lake via the Provo River system. Some water is pumped from Strawberry Reservoir, which naturally drains to the Green River system, to Diamond Fork Creek and ultimately to the Spanish Fork River and Utah Lake. This pumping is part of the Central Utah Project system.

Major Green River/Uintah Basin tributaries along the corridor include the Strawberry, Duchesne, and Uinta Rivers. The Utah State Water Plan – Uintah Basin Plan (Utah Division of Water Resources 1999) describes minimum in-stream flows for these river systems. The maintenance of minimum flows is important for maintaining healthy aquatic ecosystems and regional quality of life. By far, the largest use of surface water resources in the Uintah Basin is for agricultural production (Utah Division of Water Resources 1999).

Water Quality

Surface water resources provide a number of beneficial uses to communities along U.S. 40. These beneficial-use categories include public water supply, recreation, agriculture, and fish and wildlife protection and propagation. Consistent with Section 303(d) of the Clean Water Act, the U.S. Environmental Protection Agency (EPA) assesses and monitors the quality of the nation's surface water resources to ensure that water resources are being managed in a

way that protects beneficial uses. EPA oversees the monitoring and documentation of water bodies that it has identified as "impaired" by pollutants with the intent of improving water quality (that is, removing the impairment). The State of Utah also defines beneficial uses for many water bodies and assesses and monitors water bodies that are impaired with respect to their beneficial uses.

About 27% of the rivers and streams in Utah that have assigned beneficial uses, and 31% of the ponds, lakes, and reservoirs in Utah that have assigned beneficial uses, are identified as impaired under Section 303(d) of the Clean Water Act. Table 3-1 lists the impaired water bodies that have been inventoried and that occur along or cross the U.S. 40 corridor.

Table 3-1. Impaired Water Bodies along U.S. 40

Water Body	Location	Impairment	County
Segment 1			
None	–	–	–
Segment 2			
Strawberry Reservoir	Strawberry Valley	Organic enrichment, low dissolved oxygen	Wasatch
Starvation Reservoir	Just west of Duchesne	Organic enrichment, low dissolved oxygen	Duchesne
Segment 3			
None	–	–	–
Segment 4			
Antelope Creek	Near Bridgeland	Salinity, total dissolved solids (TDS), chlorides	Duchesne
Duchesne River	Near Myton	Salinity, TDS, chlorides	Duchesne
Segment 5			
Dry Gulch Creek and tributaries	Near Roosevelt	Salinity, TDS, chlorides	Duchesne
Segment 6			
Dry Gulch Creek and tributaries	Near Ballard and Fort Duchesne	Salinity, TDS, chlorides	Uintah
Uinta River	Near Fort Duchesne	Salinity, TDS, chlorides; habitat alterations	Uintah
Segment 7			
None	–	–	–

Table 3-1. Impaired Water Bodies along U.S. 40

Water Body	Location	Impairment	County
Segment 8			
Ashley Creek	Between Naples and Jensen	Salinity, TDS, chlorides; metals	Uintah

Source: EPA 2004

There are a number of potential pollution sources along the U.S. 40 corridor. These include but are not limited to agricultural activities, mining, and urban runoff. Any roadway improvements in the vicinity of impaired water bodies would need to be carefully designed to ensure that they would not further degrade the quality of any impaired water body. For example, modifications to roadway drainage near a water body that is listed as impaired by organic enrichment would need to be designed so that the new system would not increase the amount of organic material transported to the water body.

Floodplains

Floodplains are land areas adjacent to rivers and streams that are at risk of periodic flooding. Flood insurance rate maps (FIRMs) produced by the Federal Emergency Management Agency (FEMA) define the federally regulated boundaries of floodplains along rivers and streams. The FIRMs are part of FEMA's regulating authority under the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. Some state and local governments also conduct mapping, but typically local jurisdictions rely on floodplain information provided by FEMA.

Not all rivers and streams have been mapped by FEMA. For the U.S. 40 corridor, FEMA has produced FIRMs for most areas of Wasatch and Uintah Counties and for the cities of Duchesne and Myton in Duchesne County. The FIRMs do not provide floodplain information for tribal land or for USFS land.

Table 3-2 below lists the FEMA Zone A floodplains that occur along or that cross U.S. 40 within the study area. Zone A floodplains are those areas that are likely to be inundated by a 100-year flood (one that has a 1% chance of occurring in any given year).

Table 3-2. Zone A Floodplains along U.S. 40

River or Creek	Approximate Milepost(s)	County
Segment 1		
Daniels Creek	21–26 (USFS boundary)	Wasatch
Segment 2		
Strawberry River	36.5	Wasatch
Co-Op Creek	40–41	Wasatch
Cow Creek	45	Wasatch
Soldier Creek	50.5	Wasatch
Deep Creek	57–59[a]	Wasatch
Currant Creek	58–59[a]	Wasatch
Segment 3[b]		
Duchesne River	87	Duchesne
Segment 4		
Duchesne River	105	Duchesne
Segment 5		
None	–	–
Segment 6		
Montes Creek	119	Uintah
Uinta River	122	Uintah
Sand Wash	130	Uintah
Halfway Hollow Creek	131	Uintah
Twelvemile Wash	134–138	Uintah
Segment 7		
Steinaker Service Canal	143	Uintah
Ashley Central Canal	143	Uintah
Ashley Canal	147	Uintah
Segment 8		
Tributary to Ashley Creek	149	Uintah
Tributary to Ashley Creek	151	Uintah
Tributary to Ashley Creek	154	Uintah

Table 3-2. Zone A Floodplains along U.S. 40

River or Creek	Approximate Milepost(s)	County
Ashley Creek	154	Uintah

Sources: FEMA 1977, 1983, 1988a, 1988b

[a] Mapped to Wasatch County–Duchesne County line only.

[b] FEMA has not mapped Starvation Reservoir, which crosses U.S. 40 at about MP 82.

Any roadway projects in the vicinity of mapped floodplains would need to be designed so that the floodplain is not altered in a way that would adversely affect the capacity of the river or stream, significantly alter floodplain hydraulics, or result in other adverse downstream impacts.

3.1.2 Groundwater

Groundwater hydrology has been extensively studied in the Uintah Basin. EPA describes the groundwater hydrology as controlled primarily by the region's geologic structure, with permeability variations resulting from differences of lithology and facies (rocks distinguished from others by appearance or composition) as well as widespread faulting and fracturing of the rocks (EPA 2004).

Most of the project area overlies the Uinta-Animas Aquifer, a unit of the greater Colorado Basin Aquifer system. The Uinta-Animas Aquifer is further divided into three sub-basins: the Uinta Basin, the Piceance Basin, and the San Juan Basin. The project area overlies the Uinta Basin sub-basin.

According to Robson and Banta (1995):

> Ground-water recharge to the Uinta-Animas aquifer generally occurs in the areas of higher altitude along the margins of each basin. Ground water is discharged mainly to streams, springs, and by transpiration from vegetation growing along stream valleys.
>
> In the Uinta Basin, the part of the aquifer in the Duchesne River and Uinta Formations has about 200,000 acre-feet per year of recharge. The rate of ground-water withdrawal is small, and natural discharge is approximately equal to recharge.
>
> Dissolved-solids concentrations in water in the Uinta-Animas aquifer in the Uinta Basin generally range from 500 to 3,000 milligrams per liter; concentrations can exceed 10,000 milligrams per liter in some of the deeper

parts of the Uinta Formation. Smaller dissolved-solids concentrations are prevalent near recharge areas where the water usually is a calcium or magnesium bicarbonate type. Larger dissolved-solids concentrations are more common near discharge areas where the water generally is a sodium bicarbonate or sulfate type.

Groundwater recharge is divided between infiltration of precipitation (95.2%), infiltration of irrigation water (3.2%), and return flow from wells and springs (1.6%). About 80% of the groundwater recharge in the Uintah Basin takes place in the basin's northern half, primarily because more water, particularly in the form of precipitation, is available to enhance the recharge in the Uinta Mountains than what is available to the much lower upland areas at the southern edge of the basin (Utah Division of Water Resources 1999). U.S. 40's location in the center of the Uintah Basin and out of the Uinta Mountains places it in an area that probably contributes to some groundwater recharge (especially in irrigated areas) but not a substantial amount.

4.0 Biological Resources

4.1 General Description of Existing Conditions

The project corridor passes through a number of habitat types. Vegetation along Segment 1, which travels through Daniels Canyon, includes by sagebrush/grass, mountain brush, aspen, Douglas fir, lodgepole pine, white fir, spruce/fir, and forb (non-grass) communities. Big-game species that inhabit the area include elk, moose, black bear, cougar, and mule deer. Small mammals include cottontail rabbit and snowshoe hare. Two species of forest grouse use the area, and the federally listed whooping crane migrates through the area (USFS 2001).

The remainder of the corridor (Segments 2 through 8) passes through the center of the Uintah Basin. Major vegetation types in this basin include pinyon-juniper woodland, salt desert scrub, desert shrub, agriculture, and disturbed habitats.

The Uintah Basin is dominated by wildlife species typical of high, cold deserts. Mammals include white-tailed prairie dog, black-tailed jackrabbit, coyote, beaver, red fox, porcupine, spotted skunk, and Townsend's big-eared bat (USFS 1994). It is year-round range for deer and antelope and winter range for elk. Birds include waterfowl, wintering bald eagles, and an introduced population of Rio Grande turkeys along the Green River and its associated wetlands. Sandhill cranes and an occasional whooping crane are present during migration. The Green and Duchense Rivers are important corridors for many neotropical migratory birds. The dominant desert shrub habitat is used by burrowing owls, short-eared owls, ferruginous hawks, sage sparrows, lark sparrows, western meadowlarks, loggerhead shrikes, horned larks, and occasional irruptions (sudden population increases) of lark buntings. Golden eagles nest throughout the region. Reptiles that inhabit the Uintah Basin include the faded pygmy rattlesnake, striped whipsnake, and Woodhouse's toad.

4.2 Available Information

State and federally maintained species lists often provide a starting point for identifying special-status species that might be present in a project area. Additionally, existing resource survey data also provide information about sensitive resources and habitats that might be present in a project area. Much of the U.S. 40 project area has recently been surveyed for biological resources by

USFS and BLM. The following sections summarize the existing, readily available information about the U.S. 40 corridor.

Species Lists

There are a total of 58 species listed by the federal or state governments as threatened, endangered, or sensitive in Wasatch, Duchesne, and Uintah Counties. This list includes all special-status species known to be present in the entire three-county area and might not reflect the species that are present in the much smaller U.S. 40 project corridor. Of these 58 species, there are 16 birds, 10 fish, 10 mammals, four reptiles and amphibians, one mollusk, and 17 plants (see Appendix C. Federal and State Listed Sensitive Species for Counties along U.S. 40 in the Project Corridor). Forty-one of these 58 species are State of Utah or BLM sensitive species (wildlife species of concern, conservation agreement species, and BLM sensitive plant species), and 17 of these species are listed under the federal Endangered Species Act as threatened or endangered:

- **Birds:** bald eagle, southwestern willow flycatcher, Mexican spotted owl, whooping crane, and yellow-billed cuckoo
- **Fish:** bonytail, Colorado pikeminnow, humpback chub, and razorback sucker
- **Mammals:** black-footed ferret, brown (grizzly) bear, Canada lynx, and gray wolf
- **Plants:** Barneby ridge-cress, clay reed-mustard, shrubby reed-mustard, and Uinta Basin hookless cactus

Recent Documentation

Existing conditions along some of the corridor have been recently documented through the planning processes of USFS and BLM. The information available from these agencies could be used to supplement future project-level analyses for biological resources along U.S. 40.

The Uinta National Forest Plan Final Environmental Impact Statement (USFS 2003) includes information about USFS land between and including Daniels Canyon and Strawberry Reservoir. The document includes information about the following resources:

- Forested vegetation
- Non-forested vegetation
- Aquatics

- Terrestrial wildlife
- Threatened, endangered, and sensitive species

Conditions on BLM-administered land between Roosevelt and the project's eastern terminus are summarized in the draft Environmental Impact Statement (EIS) for the Vernal Resource Management Plan (BLM 2005). According to that document, BLM has the following information about resources in the agency-designated Vernal Planning Area, which includes a portion of the U.S. 40 corridor:

- Preliminary inventory of riparian and wetland resources
- Sensitive species
- Vegetation communities
- Noxious weeds
- Wild horse populations
- Terrestrial wildlife

4.3 Windshield Survey

On March 13 and 14, 2007, HDR biologists conducted a "windshield" (drive-through) survey of the U.S. 40 study area in order to identify (at a coarse level) sensitive resources that could be affected by or have implications on roadway improvement projects along U.S. 40. The findings of this survey are detailed in the Natural Resources Windshield Survey Memo contained in the project files. The following sections summarize the survey results.

4.3.1 Wetlands

The windshield survey did not include formal delineations of wetlands or other waters of the United States. The following assessment is based on observations by a qualified biologist.

Daniels Canyon (MP 24–34) is a narrow riparian canyon whose primary feature is Daniels Creek as it flows west from Daniels Pass. From Daniels Pass east to Strawberry Reservoir (MP 35–45), the area is dominated by the Strawberry River and the wetland complexes associated with this basin. Wetlands are scattered along the highway between Strawberry Reservoir and Duchesne (MPs 45–85); the wetlands observed were at about MPs 50, 60, and 85. Two main stretches of highway west of Duchesne had several wetland complexes: between Antelope Creek and Myton (MPs 96–106) and west of Vernal (MPs 145–155). The area between Antelope Creek and Myton is primarily characterized by wet meadow complexes, saline meadows, and wetlands associated with drainages that cross

under the highway. Between Myton and the end of the project (MP 157) near Jensen, the wetlands are primarily emergent marshes and wetlands associated with drainages, with a few small wet meadows.

4.3.2 Use of the Corridor by Deer and Elk

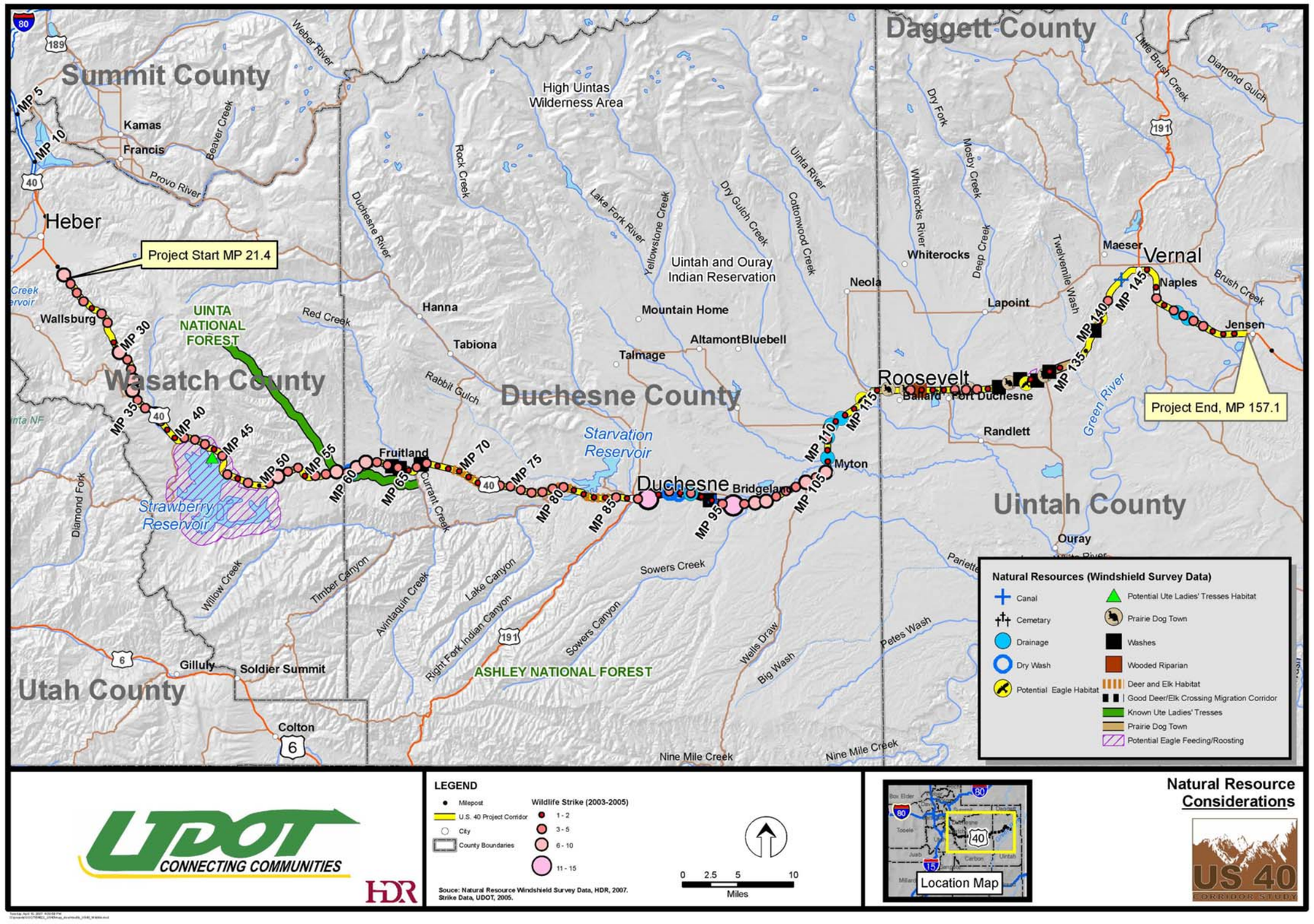
This information was collected via the windshield survey and supplemented using UDOT's 2005 strike data for large mammals.

If the number of wildlife strikes along a given segment of highway is proportional to the number of animals that cross the highway at that segment, then UDOT's 2005 strike data would indicate the numbers of animals that cross U.S. 40 at any given area. Using this assumption, Figure 4-1. Natural Resource Considerations, below shows that wildlife cross U.S. 40 consistently from the beginning of the project (MP 21) through about Roosevelt (MP 115).

The windshield survey found one area that appears to be a frequently used deer and elk migration corridor: between Duchesne and Bridgeland (MPs 86–96). This area is bounded by Indian Canyon to the west, Antelope Creek to the east, and wooded foothills on the south side of the highway. On the north side of the highway are irrigated agricultural fields and the Duchesne River drainage basin. According to UDOT, this area of U.S. 40 has the greatest number of wildlife strikes.

Other areas that are likely frequently crossed by wildlife are the narrow Daniels Canyon (MPs 21–35), the Strawberry Valley (MP 35–55), and around major water crossings such as Currant Creek (MPs 55–60) and Starvation Reservoir (MPs 75–85).

Figure 4-1. Natural Resource Considerations



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4.3.3 Plant and Wildlife Species or Habitats of Concern

The species and habitats of concern that were identified during the windshield survey include raptor nesting or foraging habitat, prairie dog towns (which indicate the possibility of burrowing owls and black-footed ferrets), and known occupied Ute ladies'-tresses habitat.

The area between Roosevelt and near Vernal (MPs 110–140) has numerous active prairie dog towns. Due to the presence of prairie dogs, the associated potential for burrowing owls and black footed-ferrets would need to be investigated to determine the impacts to these species from any U.S. 40 roadway improvement projects.

This same segment of the corridor also has the best cliff habitat for nesting raptors. Most raptors have a one-half-mile range around their nest site. This area might need to be protected from noise and construction impacts if construction occurs during the nesting season. No other habitat for species of concern was observed along the corridor.

A few plant species of concern are known to be present in the Uintah Basin. However, the windshield survey did not find any habitat along the U.S. 40 corridor that met these species' specific soil and elevation requirements. As with any project, county lists of protected species are available, and all species on the relevant lists would need to be addressed during subsequent analyses under the National Environmental Policy Act (NEPA) or consultation processes with the U.S. Fish and Wildlife Service (USFWS).

Ute ladies'-tresses, a terrestrial orchid, is known to occur south of U.S. 40 in the Uintah Basin near Currant Creek. This species is known to grow along the banks of the creek, including near the creek's crossing of U.S. 40. Other drainages that cross U.S. 40 could provide Ute ladies'-tresses habitat, but to date, no plants have been observed near U.S. 40.

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5.0 Cultural Resources

A May 2007 review of recorded cultural resource site records that are filed at the Utah Office of State History found that several cultural resource surveys have been done along the U.S. 40 corridor, but that large stretches have still not been evaluated for cultural resources (previous surveys include Bernard 2000; Billat 2003; Billat and Baker 1989; Crosland 2001, 2002; Hutmacher 2003; Polk 1992; and Polk and Weymouth 1993). An important consideration for future highway improvements in the U.S. 40 corridor study area will be the potential effect on cultural resources. The cultural overview presented in Appendix D. Summary of Cultural Resources along the U.S. 40 Project Corridor provides a context for understanding the types of archaeological and historic sites that could be encountered along the corridor.

The U.S. 40 study area extends across a vast portion of the Uintah Basin that is rich in prehistoric and historic cultural resources. Future improvement projects along the corridor are likely to encounter a variety of prehistoric and historic archaeological sites dating from a broad range of time periods. The Uintah Basin is within the traditional rangelands of several Native American tribes, and traditional cultural properties could also be encountered. In addition, U.S. 40 passes through several small communities (such as Fruitland, Bridgeland, and Myton) and larger towns (such as Duchesne, Roosevelt, and Vernal) where historic commercial buildings and houses can be found close to the highway. Other historic structures include bridges, culverts, irrigation canals, and U.S. 40 itself as the historic Victory Highway, which would also need to be considered during future planning efforts. Detailed information about these prehistoric and historic resources is included in Appendix D. Summary of Cultural Resources along the U.S. 40 Project Corridor.

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6.0 Section 4(f) and Section 6(f) Resources

6.1 Section 4(f) of the U.S. Department of Transportation Act

Section 4(f) of the U.S. Department of Transportation Act of 1966 requires that any actions funded or carried out by agencies of the U.S. Department of Transportation must be evaluated for their potential effects to significant publicly owned public parks, recreation areas, or wildlife and waterfowl refuges and any land from a historic site of national, state, or local significance (49 United States Code [U.S.C.] 303). Because UDOT might complete projects on U.S. 40 in partnership with the Federal Highway Administration (FHWA) and/or the Federal Transit Administration (FTA), the presence of potential Section 4(f) properties is an important factor. Projects without the involvement of FHWA or FTA would not be subject to the provisions of Section 4(f).

The NEPA regulations for FHWA or FTA projects that occur near or could potentially affect any Section 4(f) resource require a detailed Section 4(f) analysis. Table 6-1 lists some of the potential Section 4(f) resources along the corridor. Other resources, such as historic properties, would have to be determined on a case-by-case basis as projects are identified and carried forward into the phase of NEPA that requires environmental documentation.

Table 6-1. Section 4(f) and 6(f) Resources along the Project Corridor

Resource	Owner/Administrator	Address or Location	City/Place	Type of Resource
Wasatch County				
Dry Canyon trailhead	USFS	About MP 26.4	East of Heber City	4(f) only
Clegg Canyon trailhead	USFS	About MP 27.5	East of Heber City	4(f) only
Center Canyon trailhead	USFS	About MP 30.4	East of Heber City	4(f) only
Lodgepole Campground	USFS	About MP 33.7, west of highway	East of Heber City	4(f) only
Daniels Summit trailhead and recreation access parking area	USFS	About MP 34.4, at Daniels Summit	East of Heber City	4(f) only

Table 6-1. Section 4(f) and 6(f) Resources along the Project Corridor

Resource	Owner/Administrator	Address or Location	City/Place	Type of Resource
Telephone Hollow trailhead and recreation access parking area	USFS	About MP 35.7	East of Heber City	4(f) only
Quarry trailhead and recreation access parking area	USFS	About MP 36.4	East of Heber City	4(f) only
Strawberry River trailhead and recreation access parking area	USFS	About MP 37	East of Heber City	4(f) only
Strawberry visitor center	USFS	About MP 40.3, south of highway	Strawberry Reservoir	4(f) only
Coop Creek trailhead and recreation access parking area	USFS	About MP 41.6, north of highway	Strawberry Reservoir	4(f) only
Chicken Creek east parking and fishing access	USFS	About MP 42.6, south of highway on lake shore	Strawberry Reservoir	4(f) only
Ladders parking and fishing access	USFS	About MP 45.3, west of highway on lake shore	Strawberry Reservoir	4(f) only
Sage Creek day use area	USFS	About MP 47.5, south of highway	Strawberry Reservoir	4(f) only
Soldier Creek trailhead and recreation access parking area	USFS	About MP 50, south of highway on lake shore	Strawberry Reservoir	4(f) only
Duchesne County				
Currant Creek Wildlife Management Area	Utah Division of Wildlife Resources	About MP 58–59	Near Fruitland	4(f) only
Starvation State Park	Utah State Parks	About MP 81	Duchesne	4(f) only
Duchesne Park and Pool Complex	Duchesne City	100 W. Main Street, Duchesne	Duchesne	4(f) and 6(f)
Myton City Park	Myton City	About MP 105	Myton	4(f) and 6(f)
Roosevelt Regional Park	Roosevelt City	About MP 116	Duchesne	4(f) and 6(f)
Uintah County				

Table 6-1. Section 4(f) and 6(f) Resources along the Project Corridor

Resource	Owner/Administrator	Address or Location	City/Place	Type of Resource
Ballard Park	Ballard City/Uintah Recreation District	About MP 116.5, north of highway	Ballard	4(f) only
Cobble Rock Park	Vernal City/Uintah Recreation District	About MP 144.3, south of highway	Vernal	4(f) and possibly 6(f)
Kiwanis Park	Uintah Recreation District	About MP 144.4, north of highway	Vernal	4(f) only

Sources: USFS 2007; DWR 2002; Duchesne County School District 2007; Uintah Recreation District 2007; Uintah County School District 2007

6.2 Section 6(f) of the Land and Water Conservation Fund Act

State and local governments often obtain grants to acquire or make improvements to parks and recreation areas through the federal Land and Water Conservation Fund Act of 1965 (16 U.S.C. Sections 4601-4 through 4601-11, September 3, 1964, as amended). Section 6(f) of the act prohibits the conversion of property acquired or developed with these grants to a non-recreational use without the approval of the U.S. Department of the Interior's National Park Service. Section 6(f) directs the Department of the Interior to ensure that replacement lands of equal (monetary) value, location, and usefulness are provided as conditions to such conversions. Parks that have received funding under Section 6(f) are listed in Table 6-1. Section 4(f) and 6(f) Resources along the Project Corridor above.

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7.0 Hazardous Materials

EPA and the State of Utah maintain several searchable databases of hazardous waste sites. This report includes information from the following databases:

- EPA EnviroFacts databases: RCRAInfo, Superfund National Priorities List, and Brownfields Properties (RCRA is the Resource Conservation and Recovery Act)
- National Response Center: the federal clearinghouse for oil and chemical spill reports; releases to land only
- Utah Division of Environmental Response and Remediation (DERR): leaking underground storage tanks

7.1 Reported Sites and Spills

According to the RCRAInfo database, there are three hazardous waste handlers in Uintah and Duchesne Counties near the project corridor. Table 7-1 summarizes the type and location of these handlers.

Table 7-1. Hazardous Waste Handlers along the Project Corridor

Handler	Type of Material(s)	Address	City	County
GWEC–Bluebell Gas Plant	Crude petroleum and natural gas extraction and natural gas liquid extraction	108 North 200 East (about MP 114.5, southeast of highway)	Roosevelt	Duchesne
Pennzoil Company	Petroleum refinery (permitted large-quantity generators)	West Highway 40 (about MP 117, about 1.5 miles west of the city)	Roosevelt	Duchesne
Dowell Schlumberger Western Water	Support activities for oil and gas operations	1170 E. Main Street (about MP 145.2, east of highway)	Vernal	Uintah

Source: EPA 2007a

This table includes only handlers/generators as reported through RCRAInfo and those identified as large-quantity generators on the EPA handlers list. The table does not include all permitted small-quantity waste generators/handlers, of which there are many along the corridor; that information is available from EPA at www.epa.gov.

The RCRA Corrective Action database includes a listing for the Pennzoil Facility on West Highway 40 in Roosevelt. There are no Superfund or Brownfields sites along the corridor (EPA 2007b).

The federal National Response Center is the clearinghouse for spill reporting nationwide. There are 23 documented spills of hazardous materials to land along the corridor. A detailed list of these spills is provided in Appendix E. National Response Center Spills to Land Listings for the Project Corridor. Future project-level environmental analysis would consider the location, nature, and status of these spills in greater detail.

The Utah DERR compiles information on underground storage tanks. There are numerous records for leaking underground storage tanks along the corridor. The locations of these tanks, as well as those that have been closed, are listed in Appendix F. Leaking Underground Storage Tank Locations along the Project Corridor.

8.0 Summary of Environmental Considerations and Potential Constraints

The information in this report identifies environmental conditions that must be considered when planning for, analyzing, and designing projects along the U.S 40 corridor. In summary, the most noteworthy considerations and constraints are as follows:

- Geology and Soils
  - *Geology.* Localized unstable conditions could occur along U.S. 40, but these conditions are not documented in readily available literature. For this reason, project-specific studies could be required in areas that exhibit instability.
  - *Soils.* Soils that indicate the presence of wetlands and that are used to classify special agricultural soils could require special consideration. The presence of these soils could indicate an area that could be subject to state and/or federal regulation.
- Hydrology and Water Resources
  - *Surface Water Resources.* Project planning and construction must consider potential project-related effects (such as stream alteration) to state and federally regulated streams, rivers, ponds, and lakes along the project corridor.
  - *Water Quality.* Project planning and construction must consider the potential effects on water quality, especially to the eight systems identified as impaired under the Clean Water Act.
  - *Floodplains.* Any construction in or near the mapped or identified 100-year floodplains along the project corridor might need to be evaluated for potential construction-related effects to hydrology.
  - *Groundwater.* Any construction should consider potential water-quality effects resulting from recharge of localized groundwater sources.

- Wetlands
  - If the project is near or will directly affect wetlands and waters of the United States, the project could require permitting under the Clean Water Act.
  - Both the EPA and Federal Highway Administration (FHWA) have a "no net loss" wetland policy. If regulated wetlands are affected and compensatory mitigation is required as a result, UDOT will need to develop and implement a mitigation plan. If the total amount of potential wetland impacts resulting from projects in the U.S. 40 corridor is such that completing required wetland mitigation becomes a challenge, UDOT should consider establishing a wetland mitigation bank in the Uintah Basin. UDOT could work cooperatively with other agencies to establish and operate the bank, which would allow other agencies to use the bank as well.
- Special-Status Species
  - *Construction Considerations.* Before construction of each project, UDOT should consult state and county lists of special status species that could occur near the project and identify any required surveys. If special-status species are found, project planning and construction could require special consideration in order to ensure adequate protection of the species.
  - *Ute Ladies'-Tresses.* Work in the vicinity of known Ute ladies' -tresses populations would require preconstruction surveys and, potentially, special considerations during project planning and construction.
- Fish and Wildlife
  - *Active Prairie Dog Towns.* Work near, or that would directly affect, prairie dog towns (which can also provide habitat for burrowing owls and black-footed ferrets) would require preconstruction surveys and, potentially, special considerations during project planning and construction.
  - *Nesting Raptors.* Construction areas near active raptor nests might need to be protected against noise and construction impacts during the nesting season.
  - *Deer and Elk.* Projects in areas that are used by deer and elk should be evaluated for potential impacts on habitat connectivity and

migration patterns. Planning for projects in areas where deer and elk movement conflicts with highway travel (that is, in areas where wildlife strikes are high) should consider cost-effective means to reduce vehicle and deer/elk collisions.

- Cultural Resources
  - Future improvement projects along the highway corridor are likely to encounter a variety of prehistoric and historic archaeological sites dating from a broad range of time periods. Future planning efforts would also need to consider sites supporting and resources related to the traditional rangelands of Native American tribes and traditional cultural properties; historic commercial buildings and residences; and historic structures such as bridges, culverts, irrigation canals, and U.S. 40 itself as the historic Victory Highway.
- Section 4(f) Resources
  - If future projects have FHWA or FTA involvement, project planning will need to consider effects to Section 4(f) resources.
- Hazardous Materials
  - Planning for projects near known or suspected hazardous materials sites would need to consider effects to or resulting from proximity to the sites.

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9.0 References

Bernard, Mary

2000 Uintah Basin Communications Fiber Optic Cable Project Roosevelt-Vernal Segment Uintah County, Utah, InterMountain Archaeology Services, Jensen.

Billat, Lorna Beth

2003 A Cultural Resource Inventory of the Bridgeland Bridge for a Bridge Replacement Project in Bridgeland, Duchesne County, Utah, Earth Touch Cultural Resource Report 02-18. Earth Touch Inc., Layton.

Billat, Scott E., and Shane A. Baker

1989 An Archaeological and Historic Structure Inventory of the SR-40 Upgrade from Starvation Bridge to Duchesne, Utah. U-89-BC-090s. Museum of Peoples and Cultures Technical Series No. 89-5. Office of Public Archaeology, Brigham Young University, Provo.

[BLM] Bureau of Land Management

2005 Vernal Resource Management Plan Draft Environmental Impact Statement.

Crosland, Richard

2001 A Cultural Resources Inventory for U.S. 40 West Red Creek for Uinta Basin Telephone Association (UBTA) Encroachment, Duchesne County, Utah. U-01-UT-0065s. Utah Department of Transportation, Orem.

2002 An Addendum to a Cultural Resources Inventory for Naples One Mile Easterly Project, Uintah County, Utah. U-02-UT-0248s. Utah Department of Transportation, Orem.

[DERR] Utah Division of Environmental Response and Remediation

2007 Sites with leaking underground storage tanks in Utah. www.undergroundtanks.utah.gov/ust_lists.htm. Accessed March 1.

Duchesne County School District

2007 List of district schools. www.dcsd.org. Accessed March 7, 2007.

[DWR] Utah Division of Wildlife Resources

2002 Access to Wildlife Lands in Utah. Publication Number 01-16.

2006 Utah Sensitive Species List. October 17.

2007 Utah's State Listed Species by County.

[EPA] United States Environmental Protection Agency

2004 2004 Section 303(d) List for Utah. iaspub.epa.gov/waters/state_rept.control?p_state=ut. Accessed March 2007.

2007a RCRAInfo Database. www.oaspub.epa.gov. Accessed March 6, 2007.

2007b Superfund National Priroities List and Brownfields Database. www.epa.gov/enviro/cleanups. Accessed March 6, 2007.

ESRI

2005 Utah rivers database.

[FEMA] Federal Emergency Management Agency

1977 Flood Hazard Boundary Map, Uintah County (Unincorporated Area), Utah

1983 Flood Insurance Rate Maps, Wasatch County (Unincorporated Area), Utah.

1988a Flood Insurance Rate Map, City of Duchesne, Utah.

1988b Flood Insurance Rate Map, City of Myton, Utah.

Hintze, Lehi F.

1974 Geologic Map of Utah. Modified by Grant C. Willis in 2005. Prepared for the Utah Geological Survey.

Hutmacher, Sonia

2003 Class III Cultural and Paleontological Resources Inventory of the UVTA/UBET Communications Tabiona Turnoff to Duchesne Project along U.S. Highway 40 in Duchesne County, Utah. SWCA, Inc., Environmental Consultants, Salt Lake City.

National Response Center

2007 List of reported spills in Wasatch, Duchesne, and Uintah Counties. www.nrc.uscg.mil. Accessed March 2.

[NRCS] Natural Resource Conservation Service

2003 Soil Survey of Uintah Area, Utah – Parts of Daggett, Grand, and Uintah Counties.

2007 Soil Data Mart information. soildatamart.nrcs.usda.gov. Accessed March 8, 2007.

Polk, Michael R.

1992 A Cultural Resources Survey of the Proposed Green River Bridge Replacement Project, Uinta County Utah. U-92-SJ-001b,p,s. Archaeological Report No. 501. Sagebrush Archaeological Consultants, Ogden.

Polk, Michael R., and Heather Weymouth

1993 A Cultural Resources Survey of A Portion of U.S. Highway 40 in Vernal, Uintah County, Utah. Archaeological Report No. 580, Sagebrush Archaeological Consultants, Ogden.

Robson, S.G., and E.R. Banta

1995 Ground Water Atlas of the United States, Arizona, Colorado, New Mexico, Utah. Report HA 730-C. Prepared for the United States Geological Survey.

U.S. Army Corps of Engineers Topographic and Engineering Center

2006 The Colorado Plateau Physiographic Province. www.tec.army.mil/publications/ifsar/lafinal08_01/five/5.1.5_frame.htm. Accessed March 7, 2007.

[UGS] Utah Geological Survey

2007 Utah Earthquakes and Faults. geology.utah.gov/utahgeo/hazards/eqfault/index.htm. Accessed March 2, 2007.

Uintah County School District

2007 List of district schools. www.uintah.net. Accessed March 7, 2007.

Uintah Recreation District

2007 List of park facilities. www.uintahrecreation.org/parks.html. Accessed March 7, 2007.

[USDA and NRCS] U.S. Department of Agriculture and Natural Resources Conservation Service

2003 Soil Survey of Uintah Area – Parts of Daggett, Grand, and Uintah Counties. Prepared in cooperation with the Utah Agriculture Experiment Station, United States Department of Interior, Bureau of Land Management, Bureau of Indian Affairs, U.S. Fish and Wildlife Service, Uintah Soil Conservation District, and the Daggett Soil Conservation District.

[USDA SCS] U.S. Department of Agriculture, Soil Conservation Service

1976 Soil Survey of Heber Valley Area, Utah. Prepared in partnership with the Forest Service and in cooperation with the Utah Agricultural Experiment Station. April.

[USFS] U.S. Forest Service

1994 Ecological Subregions of the United States. Publication WO-WSA-5. July.

2001 Uinta National Forest Draft Land and Resource Management Plan. May.

2003 Uinta National Forest Plan Final Environmental Impact Statement. May.

2007 Uinta National Forest Interactive Travel Access Map. maps.fs.fed.us/ta_jsp/r4/uinta/Map.jsp. Accessed March 7.

[USFWS] U.S. Fish and Wildlife Service

2006 Endangered species in Utah counties. mountain-prairie.fws.gov/endspp/countylists/utah.htm. Accessed May 18, 2007.

Utah Division of Water Resources

1999 Utah State Water Plan, Uintah Basin Plan. December.

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10.0 Appendices

Appendix A. Complete List of Mapped Soils within One-Quarter Mile of the Project Corridor

Identifier	Soil Series Name	Notable Characteristics[a]
102	Hideout-Badland-Rock outcrop complex, 2 to 8 percent slopes	
106	Homko loam, 0 to 4 percent slopes	AASHTO A-4
12	Badland-Rock outcrop complex, 1 to 100 percent slopes	
125	Lambsen loam, 1 to 3 percent slopes	AASHTO A-4
131	Lind loam, 0 to 2 percent slopes	AASHTO A-4
132	Lind loam, 2 to 4 percent slopes	AASHTO A-4
137	Mikim loam, 3 to 15 percent slopes	AASHTO A-4
141	Milok fine sandy loam, 3 to 8 percent slopes	AASHTO A-2 or A-4
142	Milok-Montwel-Badland association, 3 to 25 percent slopes	AASHTO A-7-6
144	Montwel clay loam, 4 to 25 percent slopes	AASHTO A-6
145	Montwel very cobbly clay loam, 15 to 50 percent slopes	AASHTO A-2 or A-6
147	Montwel-Hideout complex, 2 to 25 percent slopes	AASHTO A-2 or A-4
148	Montwel-Honlu-Rock outcrop complex, 25 to 90 percent slopes	
160	Nakoy loamy fine sand, 1 to 5 percent slopes	Prime Farmland if Irrigated AASHTO A-2 or A-4
162	Nolava-Nolava, wet complex, 0 to 2 percent slopes	Prime Farmland if Irrigated AASHTO A-4
163	Nolava-Nolava, wet complex, 2 to 4 percent slopes	Prime Farmland if Irrigated AASHTO A-4
164	Nolava loam, 4 to 8 percent slopes	AASHTO A-4
166	Ohtog-Parohtog complex, 0 to 2 percent slopes	Prime Farmland if Irrigated AASHTO A-4 or A-6
167	Ohtog-Parohtog complex, 2 to 4 percent slopes	Prime Farmland if Irrigated AASHTO A-4 or A-6
169	Paradox loam, 3 to 8 percent slopes	AASHTO A-4 or A-6
174	Pariette loam, 2 to 4 percent slopes	AASHTO A-4

Identifier	Soil Series Name	Notable Characteristics[a]
176	Parohtog loam, 0 to 2 percent slopes	AASHTO A-4
181	Pits, gravel	AASHTO A-1
182	Pits-Dumps complex	AASHTO A-2 or A-1
184	Polychrome-Paradox association, 8 to 40 percent slopes	AASHTO A-4 or A-6
188	Riemod loam, 0 to 2 percent slopes	AASHTO A-4
189	Riemod loam, 2 to 4 percent slopes	AASHTO A-4
19	Begay sandy loam, 2 to 15 percent slopes	AASHTO A-2 or A-4
192	Robido-Uver complex, 1 to 4 percent slopes	Hydric AASHTO A-4 or A-1
193	Rock outcrop	
2	Abracon loam, 3 to 8 percent slopes	AASHTO A-4
20	Begay-Hideout-Rock outcrop complex, 2 to 15 percent slopes	
205	Shotnick loamy sand, 0 to 4 percent slopes	AASHTO A-2
206	Shotnick sandy loam, 2 to 4 percent slopes	Prime Farmland if irrigated AASHTO A-2 or A-4
207	Shotnick sandy loam, 4 to 8 percent slopes	AASHTO A-2 or A-4
209	Shotnick-Walkup complex, 0 to 2 percent slopes	Prime Farmland if irrigated AASHTO A-2 or A-4
213	Solirec-Abracon-Begay complex, 2 to 15 percent slopes	AASHTO A-2 or A-4
217	Splimo very cobbly loam, 8 to 25 percent slopes	AASHTO A-2 or A-4
218	Splimo very gravelly loam, 8 to 25 percent slopes, extremely flaggy	AASHTO A-2 or A-4
220	Splimo-Clapper complex, 25 to 50 percent slopes	AASHTO A-2 or A-4
221	Stygee clay loam, 0 to 1 percent slopes	Prime Farmland if irrigated AASHTO A-6
223	Stygee silty clay loam, 0 to 1 percent slopes	AASHTO A-4, A-6, or A-7
224	Sugun clay loam, 0 to 2 percent slopes	AASHTO A-6
225	Sugun sandy loam, 0 to 2 percent slopes	AASHTO A-2 or A-4
226	Sugun sandy loam, 2 to 4 percent slopes	AASHTO A-2 or A-4
23	Blackston loam, 0 to 2 percent slopes	Prime Farmland if irrigated AASHTO A-4
24	Blackston loam, 2 to 4 percent slopes	Prime Farmland if irrigated AASHTO A-4
240	Turzo clay loam, 4 to 8 percent slopes	AASHTO A-6
242	Turzo loam, 0 to 4 percent slopes	AASHTO A-4

Identifier	Soil Series Name	Notable Characteristics[a]
243	Turzo-Umbo complex, 0 to 2 percent slopes	Prime Farmland if irrigated Hydric AASHTO A-6
244	Turzo-Umbo complex, 2 to 4 percent slopes	Prime Farmland if irrigated AASHTO A-6
248	Uffens loam, 0 to 3 percent slopes	AASHTO A-4
25	Blackston loam, 4 to 8 percent slopes	AASHTO A-4
251	Umbo clay loam, 0 to 2 percent slopes	Hydric AASHTO A-6
252	Umbo silty clay loam, 0 to 2 percent slopes	Hydric AASHTO A-4, A-6, or A-7
253	Utaline very gravelly sandy loam, 0 to 2 percent slopes	AASHTO A-1 or A-2
254	Utaline very gravelly sandy loam, 2 to 8 percent slopes	AASHTO A-1 or A-2
255	Utaline very gravelly sandy loam, 8 to 25 percent slopes	AASHTO A-1 or A-2
27	Boreham loam, 0 to 2 percent slopes	Prime Farmland if irrigated AASHTO A-4
275	Wyasket loam, 0 to 2 percent slopes	Hydric AASHTO A-4
276	Wyasket loam, 2 to 4 percent slopes	Hydric AASHTO A-4
277	Wyasket peat, 0 to 2 percent slopes, ponded	AASHTO A-8
28	Braf-Rock outcrop complex, 2 to 15 percent slopes	
280	Yarts fine sandy loam, 2 to 4 percent slopes	Prime Farmland if irrigated AASHTO A-4
285	Water	
43	Clapper complex, 25 to 50 percent slopes	AASHTO A-2 or A-4
44	Clapper gravelly loam, 2 to 25 percent slopes	AASHTO A-4
45	Clapper gravelly loam-Badland-Rock outcrop complex, 25 to 50 percent slopes	
52	Clapper-Montwel complex, 2 to 50 percent slopes	AASHTO A-1, A-1, or A-4
53	Cliff sandy loam, 2 to 4 percent slopes	AASHTO A-2 or A-4
61	Crib loam, 1 to 3 percent slopes	AASHTO A-4
65	Denco silty clay loam, 8 to 25 percent slopes	AASHTO A-4, A-6, or A-7
71	Firstgap loam, 2 to 20 percent slopes	AASHTO A-4
74	Gerst parachannery loam, 4 to 25 percent slopes	AASHTO A-4

Identifier	Soil Series Name	Notable Characteristics[a]
77	Gerst-Rock outcrop complex, 4 to 40 percent slopes	
89	Green River loam, 0 to 2 percent slopes, rarely flooded	Hydric AASHTO A-4
91	Greybull clay loam, 4 to 20 percent slopes	AASHTO A-6
93	Greybull loam, 4 to 8 percent slopes	AASHTO A-4
94	Greybull-Utaline-Badland complex, 8 to 50 percent slopes	Hydric AASHTO A-7-6
95	Hanksville silty clay loam, 2 to 25 percent slopes	AASHTO A-6 or A-7
BGE	Bezzant very cobbly loam, 15 to 45 percent slopes	AASHTO A-4
BKF	Bradshaw very cobbly very fine sandy loam, 40 to 60 percent slopes	AASHTO A-1
BWF	Burgi gravelly loam, 40 to 60 percent slopes	AASHTO A-2 or A-4
CgB	Clegg loam, 3 to 6 percent slopes	Prime Farmland if irrigated AASHTO A-4 or A-6
CgC	Clegg loam, 6 to 15 percent slopes	Farmland of Statewide Importance AASHTO A-4 or A-6
COF	Cluff-Daybell association, very steep	AASHTO A-4 or A-7
CPD	Cluff soils, 15 to 25 percent slopes	AASHTO A-4 or A-7
CPF	Cluff soils, 40 to 60 percent slopes	AASHTO A-4 or A-7
DAF	Daybell-Fitzgerald association, very steep	AASHTO A-2 or A-4
DBF	Daybell soils, 40 to 65 percent slopes	AASHTO A-2 or A-4
DWC	Deer Creek-Watkins Ridge complex, 6 to 15 percent slopes	AASHTO A-6 or A-7
FA	Fluventic Haploborolls	Hydric
GMF	Gappmayer very cobbly fine sandy loam, 40 to 65 percent slopes	AASHTO A-2 or A-4
HeA	Henefer silt loam, 1 to 3 percent slopes	AASHTO A-4
HHF	Henefer-Wallsburg association, very steep	AASHTO A-6
HJC	Henefer soils, 6 to 10 percent slopes	AASHTO A-4 or A-7
Hr	Holmes gravelly loam	Farmland of Statewide Importance AASHTO A-2
Km	Kovich loam, deep water table variant	Farmland of Statewide Importance Hydric AASHTO A-6
RO	Rock land	
RRD	Roundy loam, 15 to 25 percent slopes	High shrink-swell potential 31-48” below surface AASHTO A-4

Identifier	Soil Series Name	Notable Characteristics[a]
RRE	Roundy loam, 25 to 40 percent slopes	High shrink-swell potential 31-48" below surface AASHTO A-4
RRF	Roundy loam, 40 to 60 percent slopes	High shrink-swell potential 31-48" below surface AASHTO A-4
RSC	Roundy-Cluff association, moderately steep	AASHTO A-4
RSD	Roundy-Cluff association, hilly	AASHTO A-4
RUF	Roundy-Daybell association, very steep	AASHTO A-4
SEC	Sessions clay loam, 5 to 15 percent slopes	Hydric AASHTO A-6
WBF	Wallsburg-Rock outcrop complex, 20 to 60 percent slopes	

Sources: USDA and NRCS 2003; USDA SCS 1976

[a] The American Association of State Highway and Transportation Officials (AASHTO) system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

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Appendix B. Rivers and Streams Crossed by U.S. 40 in the Project Corridor

MP	Stream Name	Stream Type
Segment 1		
22.0		Intermittent stream, river, or wash
27.5		Intermittent stream, river, or wash
28.0	Daniels Creek	Perennial stream or river
28.2	Daniels Creek	Perennial stream or river
28.4	Daniels Creek	Perennial stream or river
28.6	Daniels Creek	Perennial stream or river
29.6	Daniels Creek	Perennial stream or river
29.6		Intermittent stream, river, or wash
29.7	Daniels Creek	Perennial stream or river
30.7		Intermittent stream, river, or wash
31.6		Intermittent stream, river, or wash
Segment 2		
36.5	Strawberry River	Perennial stream or river
37.6		Intermittent stream, river, or wash
39.9	Little Co-Op Creek	Perennial stream or river
40.3		Perennial stream or river
40.5	Co-Op Creek	Perennial stream or river
40.8		Intermittent stream, river, or wash
41.3		Perennial stream or river
41.8	Chicken Creek	Perennial stream or river
43.7		Perennial stream or river
44.1	Trout Creek	Perennial stream or river
45.0		Perennial stream or river
45.5		Perennial stream or river
47.1	Sage Creek	Intermittent stream, river, or wash
50.3	Soldier Creek	Perennial stream or river
51.6	Deep Creek	Perennial stream or river
52.6		Intermittent stream, river, or wash
53.9	Deep Creek	Intermittent stream, river, or wash

MP	Stream Name	Stream Type
54.3	Deep Creek	Intermittent stream, river, or wash
54.4	Deep Creek	Intermittent stream, river, or wash
54.4	Deep Creek	Intermittent stream, river, or wash
54.6	Deep Creek	Intermittent stream, river, or wash
54.7	Deep Creek	Intermittent stream, river, or wash
54.9	Deep Creek	Intermittent stream, river, or wash
55.0		Intermittent stream, river, or wash
55.0	Deep Creek	Intermittent stream, river, or wash
55.7	Deep Creek	Intermittent stream, river, or wash
55.8	Deep Creek	Intermittent stream, river, or wash
55.9	Deep Creek	Intermittent stream, river, or wash
56.0	Deep Creek	Perennial stream or river
56.2	Deep Creek	Perennial stream or river
56.3	Deep Creek	Perennial stream or river
57.9	Deep Creek	Perennial stream or river
58.0	Currant Creek	Perennial stream or river
60.0		Intermittent stream, river, or wash
65.0	Red Creek	Perennial stream or river
65.4		Intermittent stream, river, or wash
66.4	Sand Wash	Intermittent stream, river, or wash
68.1		Intermittent stream, river, or wash
68.9		Intermittent stream, river, or wash
69.0		Intermittent stream, river, or wash
71.4		Intermittent stream, river, or wash
71.9		Intermittent stream, river, or wash
72.3		Intermittent stream, river, or wash
73.3		Intermittent stream, river, or wash
76.2		Intermittent stream, river, or wash
80.1		Intermittent stream, river, or wash
81.1	Starvation Reservoir	Reservoir
82.0		Intermittent stream, river, or wash
82.7		Intermittent stream, river, or wash
82.7		Intermittent stream, river, or wash
83.6		Intermittent stream, river, or wash
84.0		Intermittent stream, river, or wash

MP	Stream Name	Stream Type
84.3		Intermittent stream, river, or wash
84.5		Intermittent stream, river, or wash
85.5		Intermittent stream, river, or wash
85.7	Strawberry River	Perennial stream or river
Segment 3		
87.3	Strawberry River	Perennial stream or river
Segment 4		
89.0		Intermittent stream, river, or wash
91.5		Intermittent canal, ditch, or aqueduct
92.1		Intermittent stream, river, or wash
93.3		Intermittent stream, river, or wash
94.4		Intermittent stream, river, or wash
95.4		Intermittent stream, river, or wash
95.7	Gray Mountain Canal	Intermittent canal, ditch, or aqueduct
96.1		Intermittent stream, river, or wash
97.3	Antelope Creek	Perennial stream or river
97.6		Intermittent canal, ditch, or aqueduct
98.4		Intermittent stream, river, or wash
98.9		Intermittent canal, ditch, or aqueduct
99.2		Intermittent canal, ditch, or aqueduct
100.3		Intermittent stream, river, or wash
100.8		Intermittent canal, ditch, or aqueduct
102.0		Intermittent canal, ditch, or aqueduct
102.5		Intermittent canal, ditch, or aqueduct
103.6		Intermittent canal, ditch, or aqueduct
104.1		Intermittent canal, ditch, or aqueduct
104.7	Myton Townsite Canal	Intermittent canal, ditch, or aqueduct
104.8		Intermittent canal, ditch, or aqueduct
105.1		Intermittent canal, ditch, or aqueduct
105.2		Perennial canal, ditch, or aqueduct
105.4	Duchesne River	Perennial stream or river
106.4	Dry Gulch Canal	Intermittent canal, ditch, or aqueduct
107.7	South Lateral C Canal	Intermittent canal, ditch, or aqueduct
108.3		Intermittent stream, river, or wash

MP	Stream Name	Stream Type
108.7	North Lateral C Canal	Intermittent canal, ditch, or aqueduct
109.5	Sheehan Lateral	Intermittent canal, ditch, or aqueduct
110.6	Dry Gulch Creek	Perennial stream or river
111.4		Intermittent canal, ditch, or aqueduct
Segment 5		
112.5		Intermittent stream, river, or wash
112.7		Intermittent stream, river, or wash
112.7	Hancock Lateral	Intermittent canal, ditch, or aqueduct
113.9		Intermittent canal, ditch, or aqueduct
114.7	Cottonwood Creek	Perennial stream or river
116.0		Intermittent canal, ditch, or aqueduct
116.3	Pickup Wash Lateral	Intermittent canal, ditch, or aqueduct
117.7		Intermittent stream, river, or wash
Segment 6		
118.5	Harding Lateral	Intermittent canal, ditch, or aqueduct
118.8	Montes Creek	Perennial stream or river
119.4	Bench Canal	Intermittent canal, ditch, or aqueduct
120.3		Intermittent stream, river, or wash
121.1		Intermittent stream, river, or wash
121.7	Uinta River	Perennial stream or river
125.0		Intermittent stream, river, or wash
125.5	Ouray Park Canal	Intermittent canal, ditch, or aqueduct
126.0	Moffat Canal	Intermittent canal, ditch, or aqueduct
126.3		Intermittent stream, river, or wash
127.9		Intermittent stream, river, or wash
128.1	Ouray Valley Canal	Intermittent canal, ditch, or aqueduct
129.6	Sand Wash	Intermittent stream, river, or wash
130.6		Intermittent stream, river, or wash
131.0		Intermittent stream, river, or wash
132.5		Intermittent stream, river, or wash
133.7		Intermittent stream, river, or wash
133.8	Twelvemile Wash	Intermittent stream, river, or wash
135.4		Intermittent stream, river, or wash
135.4		Intermittent stream, river, or wash

MP	Stream Name	Stream Type
135.9		Intermittent stream, river, or wash
137.0		Intermittent stream, river, or wash
138.1		Intermittent stream, river, or wash
138.8		Intermittent stream, river, or wash
139.3		Intermittent stream, river, or wash
140.1	Highline Canal	Intermittent canal, ditch, or aqueduct
141.2	Ashley Upper Canal	Intermittent canal, ditch, or aqueduct
Segment 7		
142.3	Steinaker Service Canal	Intermittent canal, ditch, or aqueduct
142.6	Ashley Central Canal	Intermittent canal, ditch, or aqueduct
142.8		Intermittent stream, river, or wash
146.6		Intermittent stream, river, or wash
147.1		Intermittent stream, river, or wash
147.9	Ashley Central Canal	Intermittent canal, ditch, or aqueduct
Segment 8		
148.8		Intermittent stream, river, or wash
149.5		Intermittent stream, river, or wash
151.1		Intermittent stream, river, or wash
151.4		Intermittent stream, river, or wash
152.6		Intermittent canal, ditch, or aqueduct
153.4		Intermittent stream, river, or wash
153.7		Perennial stream or river
154.5		Intermittent canal, ditch, or aqueduct
155.1		Intermittent stream, river, or wash
155.6		Intermittent canal, ditch, or aqueduct

Source: ESRI 2005

[a] Not all features are named.

[b] Corridor segments as defined in Section 1.2 and as shown on Figure 1-1.

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Appendix C. Federal and State Listed Sensitive Species for Counties along U.S. 40 in the Project Corridor

Species	Status[a]	County[b]	Segments[c]
Birds			
American white pelican *Pelecanus erythrorhynchos*	SPC	Ui	1-4
Bald eagle *Haliaeetus leucocephalus*	ESA	Du, Ui, Wa	1-4
Black swift *Cypseloides niger*	SPC	Du, Ui, Wa	-
Bobolink *Dolichonyx oryzivorus*	SPC	Ui, Wa	2-6
Burrowing owl Athene cunicularia	SPC	Du, Ui	4-8
Ferruginous hawk *Buteo regalis*	SPC		2,6
Greater sage-grouse *Centrocercus urophasianus*	SPC	Du, Ui, Wa	2
Lewis's woodpecker *Melanerpes lewis*	SPC	Du, Ui, Wa	-
Long-billed curlew *Numenius americanus*	SPC	Du, Ui, Wa	2-6
Northern goshawk *Accipiter gentilis*	CS	Du, Ui, Wa	1-2
Short-eared owl *Asio flammeus*	SPC	Du, Ui, Wa	4-8
Southwestern willow flycatcher *Empidonax traillii extimus*	ESA	Ui	4
Mexican spotted owl *Strix occidentalis lucida*	ESA	Du, Ui	-
Three-toed woodpecker *Picoides tridactylus*	SPC	Du, Ui, Wa	1-2
Whooping crane *Grus americana*	ESA	Ui, Wa	-
Yellow-billed cuckoo *Coccyzus americanus*	ESA	Du, Ui, Wa	4
Fishes			

Species	Status[a]	County[b]	Segments[c]
Bluehead sucker *Catostomus discobolus*	CS	Du, Ui, Wa	All
Bonneville cutthroat trout *Oncorhynchus clarkii utah*	CS	Du, Wa	1-2
Bonytail *Gila elegans*	ESA	Ui	7-8
Colorado pikeminnow *Ptychocheilus lucius*	ESA	Ui	5-8
Colorado River cutthroat trout *Oncorhynchus clarkii pleuriticus*	CS	Du, Ui, Wa	1-2
Flannelmouth sucker *Catostomus latipinnis*	CS	Du, Ui	All
Humpback chub *Gila cypha*	ESA	Ui	
Leatherside chub *Gila copei*	SPC	Wa	1-2
Razorback sucker *Xyrauchen texanus*	ESA	Ui	5-8
Roundtail chub *Gila robusta*	CS	Du, Ui, Wa	2-8
Mammals			
Black-footed ferret *Mustela nigripes*	ESA[d]	Du, Ui	4-8
Big free-tailed bat *Nyctinomops macrotis*	SPC	Ui	6-8
Brown (grizzly) bear *Ursus arctos*	ESA[e]	Du, Ui, Wa	-
Canada lynx *Lynx canadensis*	ESA	Ui, Wa	1-2
Fringed myotis *Myotis thysanodes*	SPC	Du, Ui, Wa	2-8
Gray wolf *Canis lupus*	ESA[e]	Du	-
Kit fox *Vulpes macrotis*	SPC	Du, Ui	4-8
Spotted bat *Euderma maculatum*	SPC	Du, Ui	2-8
Townsend's big-eared bat *Corynorhinus townsendii*	SPC	Du, Ui, Wa	1-2
White-tailed prairie-dog *Cynomys leucurus*	SPC	Du, Ui	4-8

Species	Status[a]	County[b]	Segments[c]
Reptiles and Amphibians			
Columbia spotted frog *Rana luteiventris*	CS	Wa	1-2
Cornsnake *Elaphe guttata*	SPC	Ui	6-8
Smooth greensnake *Opheodrys vernalis*	SPC	Du, Ui, Wa	1-2
Western toad *Bufo boreas*	SPC	Du, Wa	2,4
Mollusks			
Eureka mountainsnail *Oreohelix eurekensis*	SPC	Du	1-2
Plants			
Alcove bog-orchid *Habenaria zothecina*	SPC	Ui	8
Barneby ridge-cress *Lepidium barnebyanum*	ESA	Du	2, 4
Clay reed-mustard(aka Clay thelopody) *Glaucocarpum argillacea* (aka *Schoencrambe argillacea*)	ESA	Ui	4-6, 8
Duchesne greenthread *Thelesperma caespitosum*	SPC	Du	4-5
Goodrich's blazingstar *Mentzelia goodrichii*	SPC	Du	2, 4
Goodrich's cleomella *Cleomella palmeriana goodrichii*	SPC	Ui	6-8
Goodrich's penstemon *Penstemon goodrichii*	SPC	Du, Ui	5-6
Graham's penstemon (aka Graham's beardtongue) *Penstemon grahamii*	SPC	Du, Ui	4-6, 8
Hamilton milkvetch *Astragalus hamiltonii*	SPC	Ui	5-6
Huber's pepperplant *Lepidium huberi*	SPC	Ui	6, 8
Ownbey's thistle *Cirsium ownbeyi*	SPC	Ui	8
Park rockcress *Arabis vivariensis*	SPC	Ui	8

Species	Status[a]	County[b]	Segments[c]
Rock hymenoxys *Hymenoxys lapidicola*	SPC	Ui	8
Shrubby reed-mustard *Glaucocarpum suffrutescens* (= *Schoencrambe suffrutescens*)	ESA	Du, Ui	5-6, 8
Uinta Basin hookless cactus *Sclerocactus glaucus (= S. brevispinus & S. wetlandicus)*	ESA	Du, Ui	4-6, 8
Untermann's daisy *Erigeron untermannii*	SPC	Du, Ui	2, 4, 5
White River penstemon *Penstemon scariosus* var. *albifluvis*	SPC	Ui	6, 8

Sources: BLM 2005; DWR 2006, 2007; USFWS 2006

[a] ESA = Federally listed endangered, threatened, or candidate; SPC = State or BLM species of concern; CS = Conservation Agreement Species

[b] Du = Duchesne County; Ui = Uinta County; Wa = Wasatch County

[c] Segments represent approximate areas of the county where the species could exist, not necessarily potential habitat along that segment(s) of U.S. 40.

[d] Experimental

[e] Extirpated

Appendix D. Summary of Cultural Resources along the U.S. 40 Project Corridor

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Memo

To: Sue Lee, Salt Lake City	
From: Mark Brodbeck	Project: U.S. 40 Corridor Study
c:	
Date: May 23, 2007	Job No: 54622

Re: U.S. 40 Corridor Study Cultural Resources Report

Setting

The U.S. Highway 40 (U.S. 40) Corridor Study focuses on a 135.7-mile segment of the highway in northeast Utah, in Wasatch, Duchesne, and Uintah Counties. The highway corridor begins at milepost (MP) 21.4 southeast of Heber City and ends at MP 157.1 at the town of Jensen. This region is part of the Uinta Basin of the Colorado Plateau and part of the Great Basin culture area. Prehistoric and historic archeological sites are abundant, representing over 10,000 years of human occupation. This stretch of U.S. 40 is a historic transportation route that passes through several historic towns and rural agricultural areas. It also is within the traditional rangelands of several contemporary Native American tribes.

Geographically, the U.S. 40 corridor begins in Wasatch County southeast of Heber City at MP 21.4. The corridor extends southwestward through Daniels Canyon to Strawberry Reservoir on the Uinta National Forest. The highway then turns due east extending through Deep Creek Canyon and crossing Currant Creek into Duchesne County, extending to the small community of Fruitland at about MP 62.0. From Fruitland, the highway continues in an easterly direction, crossing Red Creek and the Strawberry River, to the town of Duchesne at about MP 86.0, where the highway extends through the center of town along Main Street. From Duchesne, U.S. 40 continues to the east following the Duchesne River, past the town of Bridgeland, which sits on a bypassed segment of the old highway, and across portions of the Uintah and Ouray Indian Reservation. At MP 105.0, the highway turns northward passing through the west side of the town of Myton and across the Duchesne River. U.S. 40 continues in a north-northwesterly direction to the town of Roosevelt at about MP 115.0 and enters Uintah County. The highway enters Roosevelt from the south along North 200 Street East and, at the center of town, turns dues east along East 200 Street North. From Roosevelt, U.S. 40 heads east past Fort Duchesne, where it crosses the Uinta River, and the small town of Gusher at about MP 125.0. The highway then trends to the northeast to Vernal situated on the south side of Ashley Creek at about MP 143.0. U.S. 40 passes through the center of Vernal along Main Street. From Vernal, the U.S. 40 corridor turns to the south and southeast through the Ashley Valley, passing through the unincorporated community of Naples and across Ashley Creek, and ending at the town of Jensen, where the highway crosses the Green River at MP 157.1.

Resource Overview

The results of a cursory records check at the Utah Division of State History Office on May 7, 2007, indicate that while several cultural resource projects have taken place along the U.S. 40 corridor, large stretches remain unevaluated for cultural resources (for example, Bernard 2000; Billat 2003; Billat and Baker 1989; Crosland 2001, 2002; Hutmacher 2003; Polk 1992; and Polk and Weymouth 1993). A list of state-identified sites is included as an attachment to this report. Further project-related investigations would include a Level I records check through the Division of State History, State Historic Preservation Office that would reveal such additional sites.

An important component of future highway improvements in the U.S. 40 study area will be a consideration of potential effects to cultural resources. This cultural overview provides a context for understanding the types of archaeological and historic sites that could be encountered along the highway corridor. The region's cultural chronology is defined by five main developmental periods representing distinct adaptations to social and environmental conditions: the Paleo-Indian Period, the Archaic Period, the Formative Period, the Late Prehistoric Period, and the Historic Period.

Paleo-Indian Period (12,000–5000 BC)

The earliest evidence of human occupation dates to the Paleo-Indian Period, which represents human adaptations to terminal Pleistocene environments that were cooler and moister than present (Bettinger 1999; Grayson 1993; Madsen 1989). During this time, extensive marshlands and shallow lakes were more abundant in the Great Basin and woodland environs extended to lower elevations than today (Grayson 1993). Paleo-Indian groups are characterized as highly mobile bands of hunter-gatherers who employed a subsistence economies focused on combinations of hunting Pleistocene mega-fauna, gathering wild foods, and exploiting lacustrine resources (Cordell 1984; Elston 1982; Jones and Beck 1997; Madsen 1982; Schroedl 1976). Evidence of Paleo-Indian occupation has been found throughout Utah; however, such sites are rare given their age and generally sparse accumulations of cultural remains (Cordell 1984). Diagnostic artifacts from this time period include distinctive forms of fluted spear points, known as Clovis and Folsom points, and later stemmed points of the Plano Complex.

Archaic Period (5000 BC–AD 300)

Following the end of the Pleistocene and extinction of the mega-fauna, the Holocene era began a transition toward warmer and drier climatic conditions, glacier retreat, and a series of changes in flora and fauna (Antevs 1948; Grayson 1993). Human adaptations to the changed conditions are reflected in the Archaic Tradition characterized by small bands of hunter-gatherer groups exploiting resources in a seasonal round and the development of regionally district cultural patterns. The appearance of new project points types and the development of the atlatl indicate an emphasis of hunting medium- and smaller-sized animals (Grayson 1993). An increased reliance on processed plant resources through time is reflected by increased prevalence of ground stone tools in later assemblages.

The Archaic Period is subdivided into Early, Middle, and Late phases based on distinct patterns of material cultural detectable in the archaeological record. Although evidence of Early Archaic sites (about

5000–3000 BC) is rare in comparison to the later Middle and Late sites, early components have been identified in the Uinta Basin at sand dune sites and rock shelters primarily clustered in the lower White River drainage (Spangler 1995). During the Middle Archaic (about 3000–500 BC), human populations appear to increase based on the number of identified sites, a nomadic hunter-gatherer subsistence pattern persists, and the appearance of the distinctive McKean Complex projectile points suggests cultural influences from the northwest plains (Spangler 1995). The Late Archaic (about 500 BC–AD 300) in the Uintah Basin is distinguished by continued increases in population densities, the introduction of maize agriculture, and the arrival of bow and arrow technology. Furthermore, the use of more permanent structures indicates increased sedentism, although a mobile hunter-gathering subsistence remained prominent.

Formative Period (AD 300–1200)

The Formative Period in northern Utah spans from approximately AD 300 through about 1200 and is marked by the development of the Fremont culture. Although people developed agriculture and more permanent settlements during this time, hunting and gathering continued to be important subsistence practices. Morss (1931) first described the Fremont culture as a peripheral variant of the Anasazi; however, subsequent researchers have convincingly argued that the cultural traits of this era in northern Utah warrant distinction as a separate archaeological culture (Cordell 1984). As summarized by Barlow (2002, 65–67):

> The characteristics that distinguish Fremont material culture from other Southwestern traditions include a local variety of 8–14-rowed dent maize, often hafted on sticks; ceramics that are usually plain gray ware but sometimes decorated with appliqués, indentations or painted designs; small, regionally distinctive projectile-point types; a single-rod-and-bundle basket construction; large “Utah-type” trough metates with a distinctive shelf and secondary grinding depression; ground-stone balls; leather moccasins; and broad-shouldered anthropomorphic clay figurines and rock-art figurines with elaborate headdresses, necklaces, and earrings (Adams 1994; Aikens 1966; Cutler and Blake 1970; Madsen 1989; Marwitt 1970; Morss 1931; Winter and Hogan 1986; Winter and Wylie 1974).

The Fremont tradition fades from the archaeological record around AD 1200. Archaeological evidence suggests that Numic speakers from the Mojave Desert appeared in Utah sometime around AD 1100. Their archaeological remains primarily consist of lithic scatters with low quantities of brownware ceramics, rock art, and occasional wickiups. The influx of new people precipitated a shift back to a hunter-gatherer way of life.

Late Prehistoric Period (AD 1300–1826)

Concurrent with the arrival of new occupants into the region at the end of the Formative Period, changes in artifact styles and subsistence patterns define the Late Prehistoric Period (about AD 1200–1826). For example, the Desert Side-notched and Cottonwood Triangular projectile points and Intermountain Brownware or Shoshonean Ware became common in the region. For the eastern regions of the Great Basin, a review of available archaeological data also indicates a change in settlement patterns, subsistence behavior, material culture, footwear, trade patterns, and mortuary practices between AD 1200 and

AD 1600 (Janetski 1994). Janetski notes that Steward's 1940 model of migrationist expansion by Numic groups appears to best fit these changes.

More recent research agrees with Steward's model and has led archaeologists to believe that these changes support what they now refer to as the Numic Expansion theory, which contends that late in the prehistoric sequence, Numic language speakers moved into the Great Basin from the Mojave Desert (Madsen 1975; Steward 1938; Bettinger and Baumhoff 1982; Rhode and Madsen 1994). The documentation of Numic-speaking groups in the area at the time of Euro-American contact also supports this theory. Whether the changes noted in the material culture represent a replacement of indigenous populations, the absorption of indigenous populations into new linguistic and cultural groups, or simply cultural change by indigenous populations, however, remains open for debate (Aikens and Witherspoon 1986; Lyneis 1982; Norman and others 1982a).

By the time of historical contact with Euro-Americans in the late 1700s, the Ute, Shoshone, and Paiute, all groups that speak Numic languages, lived in the Uinta Basin (Newton 2001). Additionally, the introduction of the horse by 1750 further affected subsistence patterns and social organization, most notably through a greater emphasis on hunting (Ricks 1956) and a shift from a loose alliance of small extended family groupings to more formal tribal identities and band loyalties (Parry 2000).

Historic Period (AD 1826 – present)

European settlement of the Uinta Basin was spurred by the many natural resources present in the area. Fur traders are among the non-native inhabitants to first exploit the area. Lands with farming potential and plentiful water resources further attracted immigrants to the area. Oil and mineral deposits also played a role in the continuing development of many towns as well as transportation systems. Among others, communities such as Duchesne, Vernal, Roosevelt, Bridgeland, and Myton still exhibit historic period buildings, canals, and roads. Native culture also continues to flourish in the region.

First Europeans

Europeans first entered the Uinta Basin in the late 1700s. In 1776, the Spanish friars Francisco Atanasio Dominquez and Silvester Velez De Escalante entered Utah near the present-day Vernal and camped near Myton, referring to the area as La Ribera de San Cosme. Following the Duchesne River west to the present site of Duchesne, then following the Strawberry River to Diamond Fork, they turned south toward Spanish Fork Canyon (Auerbach 1941; Barton 1996; Bolton 1972; Burton 1996). On September 23, the friars entered Utah Valley at the present location of Spanish Fork. Their route took a southwesterly course through Utah, then turned southeast and returned to Santa Fe. In 1844, John C. Fremont entered the southwestern corner of Utah. He traveled through the territory in a northeasterly direction, passing along the western edge of the Wasatch Front until he reached the mouth of Spanish Fork Canyon. He then traveled through the canyon, found a passage (possibly Nine Mile Canyon) into the Uinta Basin, and crossed the basin, exiting Utah near present Dutch John (Miller 1986; Southworth and others 1990).

Beginning around 1820, the Uinta Basin became important in the fur trade (Burton 1996). Several fur companies focused their attention on the beaver-rich rivers of the Uinta Basin. For the next 25 years,

trappers from many different countries ranged throughout the basin, but stayed mainly near the larger streams and rivers. After the end of the fur-trading era, the Uintah Basin was not occupied by significant numbers of Euro-Americans until the late 1870s (Barton 1996). News about the Ute Indians slowed Euro-Americans interest in the region until John Wesley Powell released more favorable reports about the area around 1871; then ranching and farming began to take hold. The area, however, remained geographically isolated from the rest of Utah until roads were built to serve the needs of the various army posts in the region. An early military supply route was the precursor to the highway crossing the region, now known as U.S. 40.

Early Settlement

Acting as territorial governor, the Mormon leader Brigham Young established the Utah territory in 1850. Shortly afterward, Mormon settlers moving onto traditional tribal lands precipitated a period of conflict between settlers and Native American tribes. As Mormon populations grew and displaced local Ute tribes, relationships between the two disintegrated into a series of raids and armed conflicts. In an effort to relocated Native Americans, Young sent expeditionary parties to the Uintah Basin to assess the region's potential for settlement in 1852 and again in 1861. Both expeditions reported that the Uintah Basin was unsuitable for agriculture and was undesirable for Mormon settlement but that it was suitable place to relocate the Ute Indians (Spangler 1995), effectively isolating them from Mormon settlements (Barton 1996). Subsequently, Mormon leadership petitioned the U.S. government to move the tribes onto a reservation located in the Uintah Basin. Motivated by Mormon pressure and other economic and demographic factors, the federal government forcefully moved several Ute tribes onto the Uintah Valley Indian Reservation in 1864.

Moving the Utes onto a reservation in the Uinta Basin did not close the book, however, on poor inter-government relations, and it in turn spurred conflict between neighboring Ute tribes as well. For example, a series of armed conflicts between miners and Utes in western Colorado led to the removal of Ute tribes in that state to the Uinta Reservation in 1877. By 1880, most of the Colorado Utes were living on reservations in the Uinta Basin, sharing lands with the Uinta Utes. Crowding on the reservation and the loss of traditional land and lifestyle caused conflict between the various tribes. Further tension developed in 1905 when the U.S. government declared the reservation open to non-native settlement because mineral resources had been discovered (Spangler 1995).

The opening of the Ute Reservation to homesteading in 1905 led to the development of communities, villages, and towns in the Uintah Basin (Barton 1996). The cities of Myton, Roosevelt, and Duchesne quickly grew with farms and ranches, commercial establishments, mercantile companies, dance halls, and even baseball teams. Duchesne County was created in 1914 with nearly 4,000 residents. World War I and the Great Depression severely slowed settlement of the Uintah Basin. The decades following the Depression saw a renewed increase in economic growth and population. Oil was discovered on Ute tribal land in the early 1950s. Roads, schools, government buildings, churches, and hospitals were built. Farming and ranching continued to be economically important while natural resources, such as minerals, timber, water, and oil, were increasingly used. The Echo Park Dam, the Upper Stillwater Dam, and the Starvation Reservoir were created as part of the Central Utah Project (Hutmacher 2003).

Transportation

The development of transportation and, eventually, highway routes across the Uintah Basin began with the initial exploration and settlement of the area. As pioneers began to settle the Uintah Basin, the Dominguez and Escalante Trail, as well as others, developed into commonly used wagon roads and supply routes. E.L. Berthoud and Jim Bridger surveyed and built the first formal wagon road through the basin in 1861. Additionally, a stage line ran between Salt Lake City and Duchesne from 1912 to about 1917 (Barton 1996). Presumably following one or both of the old wagon routes, the stage carried passengers and mail until the service was discontinued in favor of mail delivery by trucks. Since the Uinta Basin did not have train service, travelers were forced to find their own transportation between the Uinta Basin and the Wasatch Front.

In 1914, the first ocean-to-ocean scenic highway, which would cross Utah, went into the planning stages (Burton 1996). Part of the planning was to use established routes across the American West as part of the ocean-to-ocean highway system. As such, Salt Lake City became a hub for highway connections. The wagon routes across the Uintah Basin between Heber City, Utah, and Dinosaur, Colorado, including Vernal's Main Street (which was paved in 1899) were chosen to become part of this highway system.

Today, U.S. 40 generally follows the historic Victory Highway (Burton 1996) and was the first all-weather, direct, transcontinental route across the United States. The Victory Highway originally began in Atlantic City, New Jersey, and ended in San Francisco, California, with about 3,022 miles of road. Dedicated to World War I veterans, the Victory Highway follows portions of the historic Dominguez and Escalante Trail in eastern Utah and the Midland Trail in western Colorado. U.S. 40 became part of the highway system in 1926 and, by the late 1930s, it was paved from Vernal east and connected to the paved portion of the Victory Highway in Colorado (Burton 1996). Unlike the National Road, Lincoln Highway, and Route 66 (other famous highways), the Victory Highway, or U.S. 40, (although it has been realigned) has not lost its original designation as "Route 40" as far west as Park City, Utah (Brusca 2000). Evidence of the early Victory Highway still survives in the Uinta Basin as in-use and abandoned road segments, partial bridge abutments and foundations, highway billboards, retaining walls, wooden mileposts, stone culverts, and unpaved road beds.

Uinta Indian Irrigation Project

As early as the 1870s, Indian agents assigned to the Uinta Indian Reservation recognized the need for irrigation canals if the reservation was to be transformed into productive agricultural land. Indian agent H.P. Myton and the Uinta Indian Commission secured water rights from the state engineer in Salt Lake City. They also made preliminary plans to build an irrigation system to deliver water to the Indian farms; however, this required a great deal of money that the Utes did not have. Without irrigation canals and ditches, under state water law, the Utes would lose their rights to the water (Burton 1996).

By the 1890s, more than a dozen small irrigation canals had been built to service Indian farms. These canals included the Number One, Bench, Henry Jim, Ouray School, Gray Mountain, U.S. Dry Gulch, Ouray Park, North Myton Bench, Lake Fork Ditch, Red Gap, and South Myton Bench canals (Barton 1996). In 1891, Uinta-Ouray Indian agent Robert Waugh suggested a more comprehensive and systematic

approach in the construction of Indian irrigation canals. In part because of his suggestions and the work of Minnesota Senator Moses Edwin Clapp, who successfully amended the general Indian appropriations bill, the Uinta Indian Irrigation project was established and Congress agreed to appropriate $600,000 for the project (Barton 1996; Burton 1996). To design, construct, and operate the Uinta Indian Irrigation Project, Congress included it as part of the larger United States Indian Irrigation Service, the Indian counterpart to the Bureau of Reclamation.

Euro-American settlers also faced the challenge of creating canals to deliver water to their farms. The Dry Gulch Irrigation Company was organized to build and manage an irrigation system for non-Indian farmers. It soon became clear that both systems faced similar challenges (Daughters of the Utah Pioneers 1947). Out of necessity, the Ute farmers and the Euro-American settlers in the county agreed to cooperate on the construction of future canals. As a result of this cooperative effort, much of the water used by Indian and Euro-American farmers alike was "mingled" and moved through both Indian and non-Indian land (Barton 1996).

Most of the earthen ditches that cross U.S. 40 belong to the elaborate network of canals built by the Indian Irrigation Service and the Dry Gulch Irrigation Company. For instance, the Harding Lateral (which is a historic property—Site 42Un2672) crosses U.S. 40 at the base of Indian Bench. The Harding Lateral originates at Montes Creek Reservoir, roughly 4 miles northwest of the point where it meets U.S. 40. Irrigation water is carried over the highway in a metal flume, which is supported by concrete abutments that stand within the highway's right-of-way. Pickup Wash Lateral (another known Historic Property—Site 42Un2671) intersects the highway's southern right-of-way east of Roosevelt (Burton 1996). The Pickup Wash Lateral originates 5 miles north of Roosevelt in an area known as the Crescent. Many other historic canal segments exist through the Uinta Basin including the Steinaker Ditch, the Highline Canal, and the Ashley Upper Canal.

Towns along U.S. 40

With the presidential proclamation in 1905 that opened all unallotted reservation land to non-Indian settlers, a land rush ensued. As hundreds of settlers and would-be miners rushed to the area, several towns and communities were established, including Heber City, Duchesne, Myton, Bridgeland, Roosevelt, and Gusher (Van Cott 1990). Much of the following material is summarized from key cultural resources reports (Bernard 2000; Billat 2003; Colman 2001; Hutmacher 2003; Mahoney 1997; Norman 1996; Norman and others 1982a; Polk and Weymouth 1993; Sagebrush Archaeological Consultants 1996) and National Historic Property and Historic American Building Survey (HABS)/Historic American Engineering Record (HAER) forms on file at the State History Division.

By the end of the first quarter of the 20th century, the Uinta Basin area had established itself as a prominent, thriving region of Utah. Farming was well established, and the mining economy was growing with the extraction of gilsonite, asphalt, and other minerals. Oil field development had begun and a good transportation corridor was in place with the opening of U.S. 40 from Salt Lake City to Denver in 1927 (Stewart 1953).

Heber City. Heber City is situated along U.S. 40 several miles northwest of the west end of the U.S. 40 study area. Heber City, which was named after Heber C. Kimball, was first settled in the mid-1800s by pioneers that ventured up Provo Canyon to farm in the rich floodplain of the Provo River. The settlers constructed the first homes in a fortified arrangement for protection at what would become the center of town. Heber City was incorporated in 1889 and it was the first town to be created in Wasatch County. The town's current population is includes about 8,000 residents.

Fruitland. Fruitland is small, unincorporated, rural community situated along U.S. 40 near MP 62.0, about 2 miles west of Red Creek. USGS topographic maps indicated a small cemetery located on the south side of U.S. 40, about 1 mile west of town.

Duchesne. The city of Duchesne is situated at the confluence of the Duchesne River and the Strawberry River. U.S. 40 passes through the center of the town along Main Street at about MP 86.0, which is lined by several historic homes and businesses. The town came into being in 1905 when the United States government opened the region to homesteading under the Allotment Act. On January 1, 1915, the eastern portion of Wasatch County was split off to form Duchesne County; by a vote of county citizens, Duchesne City became the county seat. Today, Duchesne is a community of about 1,200 people with a local economy centered in the farming and oil industries.

Bridgeland. Bridgeland is a unincorporated, rural, agricultural community situated 10 miles east of Duchesne along a bypassed segment of old U.S. 40, now designated U-86. The community is centered around the old U.S. 40 crossing of the Duchesne River where a bridge built in the early 1900s still remains. A local resident named William Smart recommended the name Bridgeland because the bridge drew the neighboring communities of Antelope and Arcadia closer together (Billat 2003). The current alignment of U.S. 40 bypasses Bridgeland at about MP 95.0, passing about 0.5 mile to the south.

Myton. The town of Myton is situated along U.S. 40 between Duchesne and Roosevelt at about MP 105. The highway passes through the side of the town where it crosses in Duchesne River. The town's origins began in the mid-1880s with the establishment of a trading post by William Henderson of Vernal. Initially, the one-building post served a small segment of the Indian population until 1886 when the army built a bridge over the Duchesne River at the location and constructed a road between Price and the newly established Fort Duchesne. The trading post's location next to the only bridge across the river increased its business and its importance in the area. It subsequently became known as "The Bridge" or "Bridges" (Barton 1996).

The Bridge housed federal government surveyors and members of the Uintah Indian Commission. Major Howell Plummer Myton, Indian agent for the combined Uintah and Ouray Indian Agency, spent considerable time at the post making preparations for the opening of unallotted Indian land in 1905. The Bridge quickly transformed the area into a small community. In the process of securing a post office for the new community, the town was named Myton by Joseph Briston, a Post Office official in Washington D.C., who was a friend of Howell Myton. Over the next 5 years, Myton became the business and financial center for the county. It soon boasted many establishments including two hotels, a blacksmith shop, a furniture store, a lumber mill, a church and a school, a physician, a realtor, an opera house, and several

general stores. Today, the remaining historic structures in Myton mainly consist of small, single dwellings built around or soon after the turn of the 20th century.

Roosevelt. The town of Roosevelt is situated along U.S. 40 at about MP 115.0. The town is bisected by Cottonwood Creek. U.S. 40 passes through the center of the town, heading north-south on South 200 Street North and then east-west along East 200 Street North. The highway passes through the town's historic commercial downtown and by a handful of historic residences. The historic State Land Lateral Canal crosses U.S. 40 on the east side of town.

The town's origins began in 1905 when the unallotted land of the Ute Indian Reservation was opened to homesteading through an act of Congress. Roosevelt was founded in early 1906 when Ed Harmston turned his homestead claim into a town site and laid out plots. His wife named the prospective town in honor of the president of the United States, Theodore Roosevelt. Within a short time, a store, a post office, and the Dry Gulch Irrigation Company were in business in the new town. In 1907, the Harmstons donated 2 acres of land for the town's citizens to build a school. The first class had about 15 pupils. Roosevelt soon became the economic center for the area, eclipsing Myton and Duchesne. The town was incorporated in 1913 and serves as the business center for the surrounding rural communities. Today, Roosevelt is home to about 3,500 people with a local economy based primarily on agriculture and the oil industry.

Fort Duchesne. U.S. 40 passes through Fort Duchesne on the Uintah and Ouray Indian Reservation at about MP 122.0, where the highway crosses the Uinta River. The historic fort complex is situated about 0.75 mile south of the highway along 7500 East Street. A cemetery is adjacent to the south side of the highway about 0.5 mile west of 7500 East Street, just east of the reservation boundary.

Fort Duchesne was established in 1886 to control Indian conflicts and assert United States military presence in the Uintah Basin (Barton 1996). By 1887, a telegraph line was completed to link the fort with other military posts and headquarters. A year later, a supply road and stage line was built from the fort to Price through Nine Mile Canyon. The Nine Mile Road became a heavily traveled route for passengers, mail, and freight.

The military maintained a presence at Fort Duchesne until 1912 when it was transferred over to the U.S. Indian Service, which used the site to consolidate its Uintah and Ouray operations. Today, Fort Duchesne serves as the tribal headquarters for the Uintah and Ouray Indian Reservation. Other historic routes associated with the U.S. 40 corridor include the Wing Song Store, which was built in 1890 and moved to its current location along the highway in 1934, and the U.S. Dry Gulch Canal, which was constructed in 1905 by the New Hope Irrigation Company.

Gusher. The town of Gusher is along U.S. 40 at about MP 125.0, about 2 miles east of Fort Duchesne. The town is a small rural community with several historic residences. Originally called Moffat in honor of David H. Moffat, a railroad magnate, Gusher was settled in 1888. The name was changed in 1922 because of the existence of Moffat, Colorado. The new name was given at a time when residents anticipated an oil gusher, which failed to materialize (Daughters of the Utah Pioneers 1947). The Henry and Mary Harris house, the Muse K. Harris cabin, and the Mary L. Naylor Hotel all date to Gusher's early historic period.

Vernal. The town of Vernal is situated along U.S. 40 near Ashley Creek at about MP 145.0. The highway passes through the center of down along Main Street, which is lined with historic commercial properties with historic residences in close proximity.

The history of Vernal began with settlers moving into the Ashley Valley in the 1870s. Following the Meeker Massacre of 1879, many settlers banded together for protection. They dismantled their cabins and left their homesteads, reconstructing them together into a three-sided fort on "the Bench," a geologic landform with easily defensible open-expanse (Daughters of the Utah Pioneers 1947; Burton and Jolley 1989). Once tensions subsided, many families moved their cabins back to their homesteads, while others remained at the fort which eventually became the town known as Ashley Center. A store was opened and the residents applied for a post office. The name Ashley Center was requested, but it was too similar to the town of Ashley; therefore, the name Vernal was assigned to the community by the U.S. Postal Department.

The beginnings of a commercial district began to emerge in the small town with the establishment of the Ashley Co-op in 1881 (Burton and Jolley 1989) and the Blyte and Mitchel Store in 1885. The 1890s also saw homesteading and coal and gilsonite mining activity increase dramatically giving rise to the town's first big population boom. During this time, the town's official boundaries were recorded in a patent in 1896 that included 640 acres. In 1905, portions of the Uintah Reservation were opened to homesteading causing a population boom in Vernal and the surrounding areas. Increased mining and agriculture began to build a strong economic base in the Ashley Valley. Over time, the town has continued to grow and develop following the prosperity and declines of the agricultural and oil industries (Hugie 1985; Polk and Weymouth 1993).

Many historic-period structures remain standing in Vernal; some are still in use. The Bank of Vernal, built in 1916, is a prominent feature of Main Street. St. Paul's Episcopal Church and Lodge, also located on Main Street and built in 1901 and 1919 respectively, also continue to serve the community. Numerous other prominent historic properties line Main Street including the Ashley Cooperative, the post office, the Langston home, and the Bennion, Hatch, and Bascom houses

Naples. Naples is an rural agricultural community dispersed along U.S. 40 in the vicinity of MP 145.0, east of Ashley Creek and about 2 miles southeast of Vernal. The settlement was named for the prominent city in Italy. It also had earlier names such as Merrill for Porter William Merrill, a local church official; Riverdale, because it was located on the Green River; and Frogtown, because of the large number of frogs in the vicinity. Bishop P.W. Merrill suggested that the name be changed from Merrill to Naples (Online Utah 2007). Several historic buildings survive in the community such as the Samira and Richards House, which is a bungalow-style structure built around the turn of the 20th century.

Jensen. The town of Jensen is situated at the east end of the U.S. 40 study area at MP 157.1 on the east side of the Green River. Several historic structures and buildings have been documented in Jensen such as the Jensen Bridge built in 1933 over the Green River, the Clark/Mix/Stewart cabin built around 1930, the Bridge Inn built in 1931, and an unnamed cottage adjacent to U.S. 40 built in 1945.

Summary

The U.S. 40 study area extends across a vast portion of the Uintah Basin that is rich in prehistoric and historic cultural resources. Future improvement projects along the highway corridor are likely to encounter a variety of prehistoric and historic archaeological sites dating from a broad range of time periods. The Uintah Basin is within the tradition rangelands of several Native American tribes, and traditional cultural properties could also be encountered. In addition, U.S. 40 passes through several small communities (such as Fruitland, Bridgeland, and Myton) and larger towns (such as Duchesne, Roosevelt, and Vernal) where historic commercial buildings and residential houses line the highway and can be found in close proximity. Other historic structures include brides, culverts, irrigation canals, and U.S. 40 itself as the historic Victory Highway, which would also need to be considered during future planning efforts.

References Cited

Adams, K.R.

1994 A Regional Synthesis of Zea Mays in the Prehistoric American Southwest. In Corn and Culture in the Prehistoric New World, edited by S. Johannessen and C.A. Hastorf, pp. 273-302. Westview Press, Boulder.

Aikens, C. Melvin

1966 Fremont-Promontory-Plains Relationships in Northern Utah. University of Utah Anthropological Papers 82. University of Utah Press, Salt Lake City.

Aikens, C. Melvin, and Y.T. Witherspoon

1986 Great Basin Numic prehistory: Linguistics, Archaeology, and Environment. In Anthropology of the Desert West: Essays in Honor of Jesse D. Jennings, edited by C.J. Condie and D.D. Fowler, pp. 7-20, University of Utah Anthropological papers 110, Salt Lake City.

Antevs, Earnst

1948 Climatic Changes and the Pre-White Man. University of Utah Bulletin Vol. 39, No. 20, pp.167–191.

Auerbach, Herbert S.

1941 Father Escalante's Route, Utah Historic Quarterly Vol. 9 No,. 2, pp. 73–80.

Barlow, K. Renee

2002 Predicting Maize Agriculture Among the Fremont: An Economic Comparison of Farming and Foraging in the American Southwest. American Antiquity 67(1), pp. 65-88.

Barton, John D.

1996 A History of Duchesne County, Utah Centennial County History Series. Utah State Historical Society, Salt Lake City.

Bernard, Mary

2000 Uintah Basin Communications Fiber Optic Cable Project Roosevelt-Vernal Segment Uintah County, Utah, InterMountain Archaeology Services, Jenson.

Bettinger, Robert L.

1999 What Happened in the Medithermal. In Models for the Millennium: Great Basin Anthropology Today, edited by Charlotte Beck, pp. 62-74. University of Utah Press, Salt Lake City.

Bettinger, Robert L., and Martin A. Baumhoff

1982 The Numic Spread: Great Basin Cultures in Competition. American Antiquity, Vol. 47, No. 3, pp.485-503.

Billat, Lorna Beth

2003 A Cultural Resource Inventory of the Bridgeland Bridge for a Bridge Replacement Project in Bridgeland, Duchesne County, Utah, Earth Touch Cultural Resource Report 02-18. Earth Touch Inc., Layton.

Billat, Scott E., and Shane A. Baker

1989 An Archaeological and Historic Structure Inventory of the SR-40 Upgrade from Starvation Bridge to Duchesne, Utah. U-89-BC-090s. Museum of Peoples and Cultures Technical Series No. 89-5. Office of Public Archaeology, Brigham Young University, Provo.

Bolton, Herbert E.

1972 Pageant in the Wilderness. Utah State Historical Society. Salt Lake City.

Brusca, Frank

2000 History of the National Road and U.S. Route 40, www.route40.net accessed May 17th, 2007.

Burton, Doris K.

1996 A History of Uintah County: Scratching the Surface. Utah Centennial County History Series, Utah State Historic Society and Uintah County Commission.

Burton and Jolley

1989

Colman, Arlene

2001 A Cultural and Paleontological Resource Inventory of Proposed Improvements to Antelope Creek Bridge and U.S. 40 Duchesne County, Utah. Project Number NH-004(30)99, Utah Department of Transportation, Salt Lake City

Cordell, Linda S.

1984 Prehistory of the Southwest. Academic Press, Inc., New York.

Crosland, Richard

2001 A Cultural Resources Inventory for U.S. 40 West Red Creek for Uinta Basin Telephone Association (UBTA) Encroachment, Duchesne County, Utah. U-01-UT-0065s. Utah Department of Transportation, Orem.

2002 An Addendum to a Cultural Resources Inventory for Naples One Mile Easterly Project, Uintah County, Utah. U-02-UT-0248s. Utah Department of Transportation, Orem.

Cutler, Hugh C., and Leonard W. Blake

1970 Appendix I: Corn from the Median Village Site. In Median Village and Fremont Culture Regional Variation, edited by J.D. Jennings and N.B. Mikkelson. University of Utah Anthropological Papers 95. University of Utah Press, Salt Lake City.

Daughters of the Utah Pioneers

1947 Builders of Uintah, Bureau of Indian Affairs, Fort Duchesne.

Elston, Robert G.

1982 Good Time, Hard Times: Prehistoric Culture Change in the Western Great Basin. In Man and Environment in the Great Basin, edited by David B. Madsen and James F. O'Connell, pp. 186-206. SAA Papers No. 2. Society for American Archaeology, Washington D.C.

Grayson, Donald K.

1993 The Desert's Past a Natural Prehistory of the Great Basin. Smithsonian Institution Press, Washington D.C.

Hugie, Robert

1985 Vernal City Reconnaissance Survey. Ms. On file at the Division of State History Utah State Historic Preservation Office, Salt Lake City.

Hutmacher, Sonia

2003 Class III Cultural and Paleontological Resources Inventory of the UVTA/UBET Communications Tabiona Turnoff to Duchesne Project Along US Highway 40 in Duchesne County, Utah. SWCA, Inc., Environmental Consultants, Salt Lake City.

Janetski, Joel C.

1994 Recent Transitions in the Eastern Great Basin: The Archaeological Record. In Across the West: Human Population Movement and the Expansion of the Numa, edited by David B. Madsen and David Rhode, pp. 157-178. University of Utah Press, Salt Lake City.

Jones, George T., and Charlotte Beck

1997 Paleoarchaic Archaeology in the Great Basin. In Models for the Millennium: Great Basin Anthropology Today, edited by Charlotte Beck, pp. 83-95. University of Utah Press, Salt Lake City.

Long, George

1992 Monument to Jension Industry Still Stands. Vernal Express

Lyneis, Margaret M.

1982 Prehistory in the Southern Great Basin. In, Man and Environment in the Great Basin, edited by David B. Madsen and James F. O'Connell, pp. 172–185. SAA Papers No. 2, Society for American Archaeology, Washington D.C..

Madsen, David B.

1975 Dating Paiute-Shoshone Expansion in the Great Basin. American Antiquity Vol. 40, pp. 82-86.

1982 Get it Where the Getting's Good: A Variable Model of Great Basin Subsistence and Settlement Based on Data from the Eastern Great Basin. In, Man and Environment in the Great Basin, edited by David B. Madsen and James F. O'Connell, pp. 207-226. SAA Papers No. 2. Society for American Archaeology, Washington D.C.

1989 Exploring the Fremont. Utah Museum of Natural History, Salt Lake City.

Mahoney, Jenni Prince

1997 A Cultural Resource and Palenontological Inventory of 120 Acres of The Ute Tribe Cattle Feeding Project Near Bridgeland, Duchesne County, Utah. JBR Cultural Resource Report 97-27, JBR Environmental Consultants, Inc., Springville.

Marwitt, John P.

1970 Median Village and Fremont Culture Regional Variation. University of Utah Anthropological Papers 95. University of Utah Press, Salt Lake City.

Miller, Wade E.

1986 Fremont Cultures. In, Great Basin, edited by W.L. D'Azevedo, pp. 161-172. Handbook of North American Indians Vol. 11, W.C. Startevant, general editor, Smithsonian Institution, Washington D.C.

Morss, Noel

1931 The Ancient Culture of the Fremont River in Utah: Report on the Explorations Under the Claflin-Emerson Fund, 1928-29. Papers of the Peabody Museum, Vol. XII, No. 3. Peabody Museum of American Archaeology and Ethnology, Harvard University, Massachusetts.

Newton, Ginny

2001 The Questar, Williams, and Kern River Pipeline Project; Native American Consultation and Identification of Traditional Cultural Places. SWCA, Inc., Environmental Consultants, Salt Lake City.

Norman, Garth V.

1996 A Cultural and paleontological Resource Inventory of Proposed Bridge Replacements, Strawberry River and Duchesne River, Duchesne County, Utah. UDOT Project No. BRO-LC13(1). Archaeological Research Consultants, American Fork.

Norman, Garth V., Schott Billat, Greg Patterson, and Don Southworth

1982a Cultural Resources Survey of the Duchesne River Area Canal Rehabilitation program, A Class III Intensive Survey. Mesa CRM Paper No. 5, Mesa Corporation, Orem.

Online Utah

2007 Naples History. www.onlineutah.com/napleshistory.shtml. Accessed May 17.

Parry, Mae

2000 The Northwestern Shoshone. In, A History of Utah's American Indians, edited by Forrest S. Cuch. Utah State Division of Indian Affairs, Utah State Division of History, Salt Lake City.

Polk, Michael R.

1992 A Cultural Resources Survey of the Proposed Green River Bridge Replacement Project, Uinta County Utah. U-92-SJ-001b,p,s. Archaeological Report No. 501. Sagebrush Archaeological Consultants, Ogden.

Polk, Michael R., and Heather Weymouth

1993 A Cultural Resources Survey of A Portion of U.S. Highway 40 in Vernal, Uintah County, Utah. Archaeological Report No. 580, Sagebrush Archaeological Consultants, Ogden.

Ricks, Joel E. (editor)

1956 The History of a Valley: Cache Valley, Utah-Idaho. Cache Valley Centennial Commission, Logan.

Rhode, David, and David Madsen (editors)

1994 Across the West: Human Population Movement and the Expansion of the Numa. University of Utah Press, Salt Lake City.

Sagebrush Archaeological Consultants

1996 Upalco Unit Replacement Project and Uintah Unit Replacement Project Central Utah Project. Draft Cultural Resources Technical Report, Sagebrush Archaeological Consultants, Ogden.

Schroedl, Alan R.

1976 The Archaic of the Northern Colorado Plateau. Unpublished Ph.D. dissertation, University of Utah, Salt Lake City.

Southworth, Don D., Land D. Richens, Deborah E. Newman, and Teri Christensen

1990 A Final Report of the Archaeological Investigation at Cove Fort Millard County, Utah. Museum of Peoples and Cultures Technical Series No. 90-3. Office of Public Archaeology, Brigham Young University, Provo.

Spangler, Jerry D.

1995 Paradigms and perspectives: A Class I Overview of Cultural Resources in the Uinta Basin and Tavaputs Plateau. Uinta Research, Inc., Salt Lake City.

Steward, Julian

1938 Basin-Plateau Aboriginal Sociopolitical Groups, Smithsonian Institution Bureau of American Ethnology Bulletin, No. 120. Washington, D.C.

Stewart, George

1953 U.S. 40 Cross Section of the United States of America. Riverside Press, Cambridge, Massachusetts, Boston.

Van Cott, John

1990 Utah Place Names. The University of Utah Press, Salt Lake City.

Winter, Joseph C., and Patrick F. Hogan

1986 Plant Husbandry in the Great Basin and Adjacent Northern Colorado Plateau. In, Anthropology of the Desert: Essays in Honor of Jesse D. Jennings, edited by C.J. Condie and D.D. Fowler, pp. 117-144. University of Utah Anthropological Papers 110. University of Utah Press, Salt Lake City.

Winter, Joseph C., and Henry G. Wylie

1974 Paleoecology and Diet at Clyde's Cavern. American Antiquity 39:303-315

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Attachment: Recorded Cultural Resources Along U.S. 40

Site Number	Project	USGS Quad. Map	Owner	National Register Status	Date Recorded	Site Type	Date	Comments
42DC000375	U01BS0016	Bridgeland	NA	Determined Eligible (SHPO concurrence)	14-Mar-01	Waterworks; dams, ditches, etc.	1907	Gray Mountain Canal
42DC001329	NA	Hancock Cove	Private	Determined Eligible (SHPO concurrence)	01-Oct-00	Waterworks; dams, ditches, etc.	1907	Martin Lateral
42DC001357	U01BS0016	Myton/Bridgeland	State	Determined Eligible (SHPO concurrence)	13-Mar-01	Transportation	1923	
42DC001357	U01BS0016	Bridgeland	State	Determined Eligible (SHPO concurrence)	13-Mar-01	Transportation	1923	Highway 40/ #14 Myton
42DC001357	U00BS0762	Fruitland	State	Determined Eligible (SHPO concurrence)	08-Dec-00	Transportation	1880	
42DC001381	U01BS0016	Myton	Private	Determined Eligible (SHPO concurrence)	14-Mar-01	Waterworks; dams, ditches, etc.	1905	
42DC001382	U01BS0016	*Confidential*	Private	Determined Eligible (SHPO concurrence)	13-Mar-01	Artifact Scatter	Prehistoric	Late prehistoric
42DC001383	U01BS0016	*Confidential*	Private	Determined Eligible (SHPO concurrence)	13-Mar-01	Artifact Scatter	Unknown	Unknown aboriginal
42DC001384	U01BS0016	Bridgeland	Private	Non-significant (professional judgment)	13-Mar-01	Farming/Ranching (agriculture)	1940	
42DC001385	U01BS0016	Myton	Private	Non-significant (professional judgment)	13-Mar-01	Farming/Ranching (agriculture)	1940	

Site Number	Project	USGS Quad. Map	Owner	National Register Status	Date Recorded	Site Type	Date	Comments
42DC001386	U01BS0016	Bridgeland	Private	Non-significant (professional judgment)	13-Mar-01	Farming/Ranching (agriculture)	1940	
42DC001505	U02ST0423	Rabbit Gulch	State	Non-significant (professional judgment)	26-Jul-02	Transportation	1900	
42DC001506	U02ST0423	Rabbit Gulch	State	Determined Eligible (SHPO concurrence)	28-Jul-02	Transportation	1899	Victory Highway
42DC001507	U02ST0423	Strawberry Pinnacles	State	Non-significant (professional judgment)	28-Jul-02	Transportation	1930	
42DC001508	U02ST0423	Strawberry Pinnacles	State	Non-significant (professional judgment)	28-Jul-02	Transportation	1926	
42UN001562		Vernal SW	BLM	Non-significant (professional judgment)	30-Sep-85	Waterworks; dams, ditches, etc.	1890	
42UN001562	U00IQ0047	Fort Duchesne	State	Determined Eligible (SHPO concurrence)	15-Jun-00	Transportation	1890	
42UN002671	U00IQ0047	Hancock Cove	Private	Determined Eligible (SHPO concurrence)	01-Apr-00	Waterworks; dams, ditches, etc.	1907	Pickup Wash Lateral
42UN002672	U00IQ0047	Roosevelt	Private	Determined Eligible (SHPO concurrence)	04-Apr-00	Waterworks; dams, ditches, etc.	1907	
42UN002673	U00IQ0047	Whiterocks	Private	Determined Eligible (SHPO concurrence)	04-Apr-00	Waterworks; dams, ditches, etc.	1890	
42UN002674	U00IQ0047	Lapoint	Private	Determined Eligible (SHPO concurrence)	04-Apr-00	Waterworks; dams, ditches, etc.	1906	Moffat Canal

Site Number	Project	USGS Quad. Map	Owner	National Register Status	Date Recorded	Site Type	Date	Comments
42UN002674	U01BS0353	Fort Duchesne	Private	Determined Eligible (SHPO concurrence)	01-Jun-01	Farming/Ranching (agriculture)	1906	
42UN002675	U00IQ0047	Lapoint	Private	Determined Eligible (SHPO concurrence)	04-Apr-00	Waterworks; dams, ditches, etc.	1907	
42UN002675	U01BS0353	Fort Duchesne	Split Estate	Determined Eligible (SHPO concurrence)	01-Jun-01	Waterworks; dams, ditches, etc.	1908	
42UN002676	U00IQ0047	Steinaker Reservoir	Private	Determined Eligible (SHPO concurrence)	04-Apr-00	Waterworks; dams, ditches, etc.	1913	Highline Canal
42UN002679	U00IQ0047	Whiterocks	Private	Determined Eligible (SHPO concurrence)	15-Jun-00	Waterworks; dams, ditches, etc.	1905	Ouray Valley Canal
42UN002680	U00IQ0047	Steinaker Reservoir	Private	Determined Eligible (SHPO concurrence)	01-Jun-00	Waterworks; dams, ditches, etc.	1880	
42UN002681	U00IQ0047	Roosevelt	Private	Determined Eligible (SHPO concurrence)	15-Jun-00	Waterworks; dams, ditches, etc.	1920	
42UN002915	U01BS0353	Fort Duchesne	Tribal	Determined Eligible (SHPO concurrence)	01-Sep-01	Waterworks; dams, ditches, etc.	1886	
42UN002958	U01AY0705	Naples	Private	Non-significant (professional judgment)	01-Nov-01	Farming/Ranching (agriculture)	1890	
42UN002959	U01AY0799	Rasmussen Hollow	Private	Non-significant (professional judgment)	01-Nov-01	Farming/Ranching (agriculture)		
42UN001562	U02ST0021	Cliff Ridge	State	Determined Eligible (SHPO concurrence)	21-Mar-02	Transportation	1880	Victory Highway/US 40

Site Number	Project	USGS Quad. Map	Owner	National Register Status	Date Recorded	Site Type	Date	Comments
42UN003702	U04MM0007	Vernal SW	State	Non-significant (professional judgment)	15-Apr-04	Farming/Ranching (agriculture)	1919	

Source: Utah Office of State History 2007

Appendix E. National Response Center Spills to Land Listings for the Project Corridor

NRC Report#	Incident Date	Street/Location	County	City	Type Of Incident	Medium Affected	Material Name
95830	11/10/1991	NA	Uintah	Vernal	Fixed	Land	Oil: Crude
263680	09/30/1994	Star Route	Uintah	Vernal	Fixed	Land	Gilsonite
540633	08/31/2000	2160 South 1500 East St	Uintah	Vernal	Storage Tank	Land	Hydrochloric Acid
808971	08/24/2006	721 West 100th South	Uintah	Vernal	Fixed	Land	Mercury
818703	11/20/2006	2160 South at 1500 East	Uintah	Vernal	Storage Tank	Land	Techni-Hiv767w
824745	01/26/2007	64 East Main St	Uintah	Vernal	Fixed	Land	Mercury
95686	11/09/1991	West Hwy 40	Duchesne	Roosevelt	Fixed	Land	Gasoline Automotive
115250	04/22/1992	West Hwy 40	Duchesne	Roosevelt	Fixed	Land	Gasoline: Automotive (4.23g Pb/G Oil: Diesel
123377	06/23/1992	West Hwy 40	Duchesne	Roosevelt	Fixed	Land	Gasoline: Automotive (4.23g Pb/G
136987	09/16/1992	West Hwy 40	Duchesne	Roosevelt	Mobile	Land	Gasoline: Automotive (4.23g Pb/G
204062	10/21/1993	West Hwy 40	Duchesne	Roosevelt	Fixed	Land	Oil: Crude
214834	01/02/1994	West Hwy 40	Duchesne	Roosevelt	Fixed	Land	Oil: Crude
265289	10/13/1994	West Hwy 40	Duchesne	Roosevelt	Fixed	Land	Oil: Crude
375732	02/06/1997	US 40 West Edge of Roosevelt	Duchesne	Roosevelt	Mobile	Land	Gasoline: Automotive (Unleaded)
387454	05/16/1997	Adjacent to State Hwy 40 at Starvation Reservoir	Duchesne	Duchesne	Fixed	Land	Condensate Plus Produced Water

NRC Report#	Incident Date	Street/Location	County	City	Type Of Incident	Medium Affected	Material Name
412085	11/18/1997	Mile 1365 South of Hwy 40 on County Road	Duchesne	Duchesne	Mobile	Land	Oil: Crude
717745	04/02/2004	Intersection of 9900 South, 4500 West 1400 Feet East of the Intersection	Duchesne	Myton	Pipeline	Land	Oil: Crude
805270	07/23/2006	10530 South County 33	Duchesne	NA	Pipeline	Land	Ethylene Glycol
821630	12/20/2006	Hwy 40 4500 West	Duchesne	Fruitland	Mobile	Land	Oil: Crude
296130	06/19/1995	Hwy 40 2 Mi W of Currant Creek and 32 Mi W of Duchesne at Currant Creek Store and Restaurant	Wasatch	Currant Creek	Mobile	Land	Oil: Crude

Source: National Response Center 2007

Appendix F. Leaking Underground Storage Tank Locations along the Project Corridor

Location Name	Location Street	Location City	Location County	Date Closed
Currant Creek Gas N' Grub	Currant Creek Junction Hwy 40	Heber City	Wasatch	28-Jun-02
Strawberry Bay Marina	23 Miles East Hwy 40	Heber City	Wasatch	29-Oct-01
UDOT Sta. 3445	US-40 Strawberry Valley	Heber City	Wasatch	10-Aug-95
Bonanza Sinclair	94 E Main St	Duchesne	Duchesne	14-Apr-98
Duchesne Bus Yard	150 W 500 S	Duchesne	Duchesne	09-May-95
Duchesne City	400 S 100 W	Duchesne	Duchesne	23-Dec-94
Firehall NE Corner	50 E 100 S	Duchesne	Duchesne	07-Oct-94
Foodtown	171 E Main	Duchesne	Duchesne	02-May-95
Killian's	150 E Main St	Duchesne	Duchesne	13-Jan-98
Longhorn Service, Inc.	72 West Main	Duchesne	Duchesne	
Mariella Potter Family Trust / Rocket Station	200 E Main St	Duchesne	Duchesne	
Rod Harrison	17 E Main St	Duchesne	Duchesne	
Starvation Park Marina Maintenance	P O Box 585	Duchesne	Duchesne	18-Apr-95
Sunrise Chevron	432 W Main St	Duchesne	Duchesne	
Sunrise Chevron	432 W Main St	Duchesne	Duchesne	
UDOT Maint. Yard #634 UHP Pump	261 S 300 E	Duchesne	Duchesne	16-Jul-02
Weed Control Bldg.	100 E 200 S	Duchesne	Duchesne	15-May-95
7-Eleven 1852-22230	510 E 200 N	Roosevelt	Duchesne	
Basin Diesel Service, Inc.	W Hwy 40	Roosevelt	Duchesne	26-Jan-94
Basin Western Inc.	3639 E Hwy 40 Matlack Terminal	Roosevelt	Duchesne	17-Aug-90
Bluebell Station	Star Route 1, Cedar View	Roosevelt	Duchesne	01-Jun-90

Location Name	Location Street	Location City	Location County	Date Closed
Campbell Repair Shop	162 N 300 E	Roosevelt	Duchesne	26-Apr-95
Case Equipment Dealer (Roper Machine)	W Hwy 40	Roosevelt	Duchesne	14-Sep-99
Cellular One (Previously L.C.L. Phillip 66)	192 N 200 E	Roosevelt	Duchesne	19-Dec-96
Crumbo's	169 N 200 E	Roosevelt	Duchesne	03-Jul-95
Dominion Exploration & Production (Cng Production Co)	994 N State St	Roosevelt	Duchesne	31-May-90
Duchesne County Mosquito Abatement	2010 W 1510 S (West Highway 40)	Roosevelt	Duchesne	
Ellie's EZ Stop	201 S 200 E	Roosevelt	Duchesne	04-Oct-04
Gary's Insulation, Inc.	West Hwy 40 N Side Ioka Turnoff	Roosevelt	Duchesne	15-May-95
Inland Oil Products	450 W Main St	Roosevelt	Duchesne	27-Mar-97
Intermountain Farmers Assoc.	West Highway 40	Roosevelt	Duchesne	
L & L Motor Co., Inc.	191 N 200 E	Roosevelt	Duchesne	
L.C.L. South	380 S 200 E	Roosevelt	Duchesne	
Maverik #322	310 S 200 E	Roosevelt	Duchesne	08-Aug-01
Murphy's Save More	RR#2	Roosevelt	Duchesne	19-Jan-05
Murray Motor & Invest. Corp.	157 S 200 E	Roosevelt	Duchesne	12-Jul-95
National Oilwell	West Hwy 40	Roosevelt	Duchesne	
Old West Trading Post	2 Mi E Roosevelt Hwy 40 Ballard	Roosevelt	Duchesne	03-May-95
Prairie Gold Well Service	West Highway 40	Roosevelt	Duchesne	04-May-95
Red Rock Shell	120 S 200 E	Roosevelt	Duchesne	
Roosevelt Bus Garage	430 N 300 W	Roosevelt	Duchesne	09-May-95
Roosevelt Municipal Airport	W Poleline Rd 1707 S 3000 W	Roosevelt	Duchesne	31-Mar-98 15-Mar-99
Roosevelt Refinery	West On Hwy 40	Roosevelt	Duchesne	21-Jul-95

Location Name	Location Street	Location City	Location County	Date Closed
Sinclair Station Nebeker Oil	823 E 200 N	Roosevelt	Duchesne	21-Feb-95
U.S. West 673450	58 N 100 E	Roosevelt	Duchesne	18-May-98
UBTA (Previously Roosevelt Triangle #61)	211 E 200 N	Roosevelt	Duchesne	30-Dec-96
UDOT Maint. Yard #635 UHP Pump	Hwy 40, 2 Mi W Roosevelt	Roosevelt	Duchesne	
Uinta Basin Applied Technology	1100 East Lagoon	Roosevelt	Duchesne	11-Mar-96
Uintah Basin Medical Center	250 W 300 N	Roosevelt	Duchesne	10-Dec-98
Uintah Basin Telephone Assn. Inc	Headquarter Site, W Hwy 40	Roosevelt	Duchesne	12-Jul-96
Union High School	E Hwy 40	Roosevelt	Duchesne	27-Jun-95
Western Petroleum, Inc.	2600 East Highway 40	Roosevelt	Duchesne	28-Jul-00
Maverik #143	1025 E 200 N	Ballard	Uintah	19-Jun-95 23-Aug-05
Old Hilltop Station	East Us Hwy 40	Fort Duchesne	Uintah	
Outpost Mercantile	Hwy 40 , Box 99	Fort Duchesne	Uintah	15-Nov-99 11-Jun-91
B & L Conoco	U S Highway 40/ Utah 149	Jensen	Uintah	03-May-95
Dinosaur National Monument	Quarry, Green River District	Jensen	Uintah	22-Jun-94
Preston Pit Stop/Old Service St.	N E Corner Hwy 40 & 149 West Of Jensen Bridge, Jensen	Jensen	Uintah	24-Jan-95
7-Eleven 1852-24443	2495 S Hwy 40	Naples	Uintah	06-Aug-01 07-Dec-05 25-Jan-99
Old Store & Gas Station	2280 S 1500 E	Naples	Uintah	
Questar Pipeline, Vernal Operations	1571 E 1700 S	Naples	Uintah	24-Jun-94 02-Oct-01
7-Eleven 1852-22234	910 W Hwy 40	Vernal	Uintah	25-Apr-05

Location Name	Location Street	Location City	Location County	Date Closed
7-Eleven 1852-23832	100 N Vernal Ave	Vernal	Uintah	06-Aug-01
7-Eleven 1852-25824	501 E Main St	Vernal	Uintah	
Ashley Valley Sewer Lift Station	2800 E 1500 S	Vernal	Uintah	15-Aug-01
Baroid Drilling Fluids, Inc.	1092 E Main St	Vernal	Uintah	24-May-90
BJ Services (Western Co. of Vernal Facility)	2146 S 1500 E	Vernal	Uintah	13-Feb-03
Brian O'Neil	31 N 100 W	Vernal	Uintah	28-Jun-02
Bureau of Land Management	425 E 200 S	Vernal	Uintah	22-Aug-95
C & H Distributing Co.	1272 E 500 S	Vernal	Uintah	07-Apr-95
Casada D E Rig & Construction Co.	221 S 1000 E	Vernal	Uintah	25-Jan-94
Chevron #73272	190 E Main St	Vernal	Uintah	07-Mar-97
Cig Co./Vernal Headquarters	1176 E 1500 S	Vernal	Uintah	12-May-94
Coca-Cola Bottling Co. of Vernal	760 N Vernal Ave	Vernal	Uintah	03-Feb-98
Cummins Intermountain	1435 E 335 S	Vernal	Uintah	14-Jul-95
Dalbo Inc. Vernal	355 S 1000 E	Vernal	Uintah	20-Apr-00
Dinoland Aviation	830 E 500 S	Vernal	Uintah	12-May-03
Dowell Schlumberger, Inc.	1170 E Main St	Vernal	Uintah	16-Jun-95
Flint Engineering & Const. Co.	1681 E 1500 S	Vernal	Uintah	22-Jan-99
Grant & Cheryl Richens	2510 N 500 W	Vernal	Uintah	30-Aug-94
Hallibutron Services	1085 E Main 1 Mile E of Center In	Vernal	Uintah	23-Aug-95
Intermountain Concrete Company	625 E Main St	Vernal	Uintah	15-May-95
Intermountain Farmers Assoc.	994 S 1500 E	Vernal	Uintah	

Location Name	Location Street	Location City	Location County	Date Closed
John D. Stagg	515 N Vernal Ave	Vernal	Uintah	15-Jul-92
Last Chance	3340 N Vernal Ave	Vernal	Uintah	22-Apr-94
Laveen Oaks	475 S 500 E	Vernal	Uintah	
Lynn's Texaco	199 W Main St	Vernal	Uintah	
Maverik #142	490 W Main St	Vernal	Uintah	13-Mar-06
Mid-Town Tire & Auto	295 W Main St	Vernal	Uintah	02-May-01
Montgomery Brothers, Inc.	500 E Main St	Vernal	Uintah	04-Feb-94
Perry Motor Co., Inc.	463 E Main St	Vernal	Uintah	23-Sep-99
Philip W. Martin Water Serv.	357 N 2500 W	Vernal	Uintah	14-Jun-95
Pool Well Service	1500 E 1000 S	Vernal	Uintah	10-Jul-95
Premoco #37	850 W Highway 40	Vernal	Uintah	21-May-96
Pride Food Mart Vernal West	895 W Hwy 40	Vernal	Uintah	21-Apr-95
R.W. Jones Trucking Co.	660 W 1500 S	Vernal	Uintah	26-Oct-94 05-Apr-94
RDT Inc.	1281 East Hwy 40	Vernal	Uintah	05-Jul-06
Ross Construction Co., Inc.	1175 E 135 S Po Box 397	Vernal	Uintah	13-Aug-98
Salina Investment Co. #26	615 W Main St	Vernal	Uintah	27-Mar-97
Schulz 66 (Old Phillips #007830)	216 E Main St	Vernal	Uintah	11-Jun-98
Superior Tire Service Inc.	88 E 300 N	Vernal	Uintah	05-May-95
Texaco Station	332 W Main St	Vernal	Uintah	
Turner Lumber, Inc.	605 E Main St	Vernal	Uintah	11-May-95
U.S. West 673540	67 N Vernal Ave	Vernal	Uintah	26-Aug-98
UDOT Maint. Yard #637 UHP Pump	318 N Vernal Ave	Vernal	Uintah	30-Jun-94
UDOT Sta. 637	318 N Vernal Ave	Vernal	Uintah	30-Jun-94
Uintah County	400 S 1500 E	Vernal	Uintah	22-May-95
Uintah County Road Dept.	392 E 200 S	Vernal	Uintah	13-Jun-90
Utah Motor Company	270 E Main St	Vernal	Uintah	03-May-95

Location Name	Location Street	Location City	Location County	Date Closed
Utah Power & Light Company	183 S 500 E	Vernal	Uintah	27-Nov-90
Vacant Parcel	1140 W Hwy 40	Vernal	Uintah	26-Mar-97
Vernal Armory	220 S 500 E	Vernal	Uintah	15-May-95
Vernal Bulk Plant	350 N Vernal Ave	Vernal	Uintah	
Vernal Shop-N-Go	110 W Main St	Vernal	Uintah	19-Jun-06
Vernal Tri-Mart	206 W Main St	Vernal	Uintah	
Western Petroleum, Inc.	1521 S 1500 E	Vernal	Uintah	
Westside 66	508 W Main St	Vernal	Uintah	12-Jul-95
Wilkins Bus Line Inc.	343 S Vernal Ave	Vernal	Uintah	09-Jul-02

Note: some facilities may have more than one leaking UST or more than one closed leaking UST.
Source: DERR 2007